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COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

Newsprint Hauler Makes News, Too!

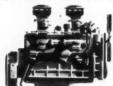
This Gold Comet-powered Reo Model E-22R, hauling newsprint from Los Angeles Harbor 25 miles to the Los Angeles Herald-Express, is making its own headlines for outstanding truck performance.

The Gray Truck Co. reports: "The new Reo's ability to pick up speed enables the driver to 'make' signals and cut running time 20 minutes per trip. The Gold Comet truck is outperforming the much larger vehicle it replaced. Average payload is 32,000 lbs., and average gasoline consumption, with full load, is five miles per gallon."





1 NEW 377 cu. in. Heavy-duty Engine



You get power with economy . . . 154 maximum gross horsepower; 330 poundfeet maximum gross torque. It's of the famous, time-proved L-head type. It is designed and precision-built to provide the right power for low-cost, long-life operation on your job.

② NEW "Twin" Carburetion

A new Dodge engineering advancement in the 4-ton field! Two down-draft carburetors provide the right mixture of gas and air for high-tonnage power with remarkable economy. Twin intake manifolds assure uniform engine operation at all times.

3 NEW Sodium-cooled Valves . . . With Hydraulic Lifters

Hard, durable silchrome intake valves and inserts withstand high temperatures. Stellite-faced, sodium-filled, silchrome exhaust valves resist warping and scaling. Hydraulic lifters insure perfect valve operation; longer truck life.

4 NEW 5-Speed Helical Transmission

For quiet operation and long life, a rugged, constant-mesh, 5-speed helical transmission, direct-in-fifth, is standard on all 4-ton models. A 5-speed helical, constant-mesh over-drive transmission is available at slight extra cost.

5 NEW 18,000 or 22,000-Pound Rear Axles

Dependable performance and long life are assured by rugged 18,000 or 22,000-pound capacity rear axles. Highquality steels, precision-cut gears, and the liberal use of bearings, further insure "on-the-job" dependability, for a long, long time.

To Haul BIG Loads at LOW Cost!

There's a new money-saving truck in the high-tonnage field!

It's the new Dodge 4-tonner . . . "Job-Rated" to haul big loads at low cost!

Study its advanced, heavy-duty features at the left. Compare the truck itself with any other in its capacity range. If your requirements fall in the 28,000-pound G.V.W. range (up to 50,000 pounds G.C.W.), here, indeed, is lower-cost hauling!

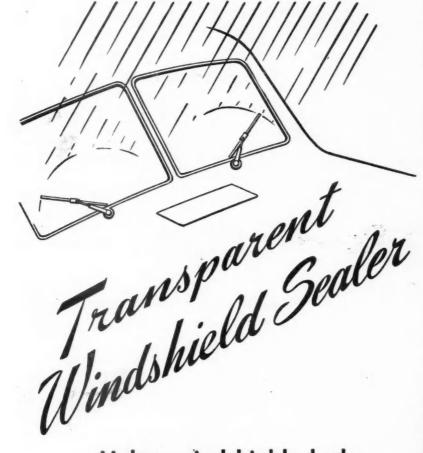
Ask your Dodge dealer to show you this "Job-Rated" load-lugger . . . soon!

For low-cost transportation, switch to

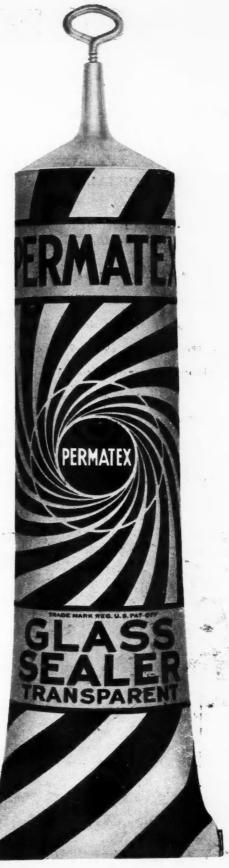
"Job-Rated" TRUCKS

Transportation

SEAL OUT THE WEATHER



Makes windshields leakproof to rain or snow. Always is crystal clear, colorless and pliable.



PERMATEX COMPANY, INC., BROOKLYN 29, N. Y.

COMMERCIAL CAR

Vol. LXXIX

Phliadelphia, March, 1950

No. 1

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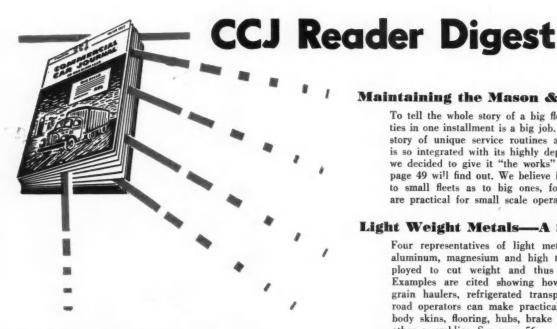
R. RAYMOND KAY, Pacific Coast Editor

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Two-Way Radio Boosts Business

Water-Land, Los Angeles fleet operator, invests \$7000 in two-way radio equipment with this result: Dispatcher is in constant contact with radio-equipped vehicles to give new pickup orders, change of orders, last minute ship sailing orders, emergency aid and messages to other trucks in fleet. Best of all: Gross monthly tonnage jumps from 4800 to 8000. See Page 67.

Maintaining the Mason & Dixon Lines

To tell the whole story of a big fleet's maintenance activities in one installment is a big job. But the Mason & Dixon story of unique service routines and overhaul procedures is so integrated with its highly departmentalized shop that we decided to give it "the works" as readers who turn to page 49 will find out. We believe it is of as much interest to small fleets as to big ones, for most of the methods are practical for small scale operations.

Light Weight Metals—A Symposium

Four representatives of light metal suppliers show how aluminum, magnesium and high tensile steel can be employed to cut weight and thus up payload capacities. Examples are cited showing how tank truck operators, grain haulers, refrigerated transport fleets and over-theroad operators can make practical use of light metals in body skins, flooring, hubs, brake parts, axles and various other assemblies. See page 56.

Road Rules Should Work Two Ways

Trucks and their drivers are getting a pretty stiff goingover these days. Ken Beadle, P.I.E's Director of Safety, sums the situation ably, pointing particularly to situations that make it almost impossible for the truck driver to comply with certain regulations. For his solution to the problem see Page 72.

JOURNA

with which is combined Operation & Maintenance Reg. U. S. Pat. Off. Member C.C.A.

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Training Improves Bus Maintenance

Our mechanic training program, assisted by the manufacturer and carried on in our own shops with our own instructors, has resulted in new interest and new competence shown by the men who keep our buses rolling, says this Delaware property. These men gave of their own time in two-hour evening courses for 17 weeks. Attendance has been excellent, instruction competent, and both men and management gained. See page 54.

What Is the Life of Rear Axle Parts?

This latest addition to the Fleet Operators' Experience Handbook points out that axle shafts average 118,042 miles, even though some fleets get as few as 10,000 and others as many as 500,000 miles. For the life differentials and other axle parts see Page 65.

Milwaukee Specializes Vehicle Repairs

Milwaukee has done a fine job of solving the maze of problems confronting municipal fleets. Last month the author of this article explained how the fleet was centralized, how a PM and a maintenance control system was established, and general operating efficiency accomplished. This article explains how the remaining problems were handled. Of eight city garages, for example, only three do major repairs and each specializes. For these and other facts see Page 62.



Capacity: UP; Price: DOWN

MODEL 53 HOIST

The new version of our Model 53 Hoist matches the hauling capacity of today's larger, heavier-built trucks. Payload rating of the new 53 Hoist is 18,000 pounds in a dump body of 10' length.

Yet this hoist is offered to you at a lower cost than that of the model which it replaces. Greater payload capacity with a smaller investment certainly means, lower cost per yard of material handled.



St. Paul's new roller-bearing pump is furnished with each Model 53 Hoist. This precision machined unit may be used in continuous operations such as spreading of road materials.

For complete details call your St.Paul Distributor or write for literature today.

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GAR WOOD INDUSTRIES, INC.



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Texaco Marfak Heavy Duty provides fluid lubrication inside wheel bearings but retains its original consistency at the edges. Thus, it seals itself in, seals out dirt and moisture, protects against rust. Safer braking is assured, and bearings last far longer. No seasonal change is required.

In chassis bearings, use *Texaco Marfak*. Even the roughest service won't pound or squeeze it out. It gives protection against wear and rust for extra hundreds of miles. Chassis parts last longer, maintenance costs are reduced.

For lower engine maintenance costs, lubricate with Texaco D-303 Motor Oil. It is fully detergent and dispersive, keeps engines clean — thus reduces wear, assures better performance and longer life for all engine parts.

Let a Texaco Lubrication Engineer help you reduce your automotive maintenance costs. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, New York.



le Place a small amount of Texaco Marfak Heavy Duty on fingers of one hand. Hold bearing (cleaned with kerosine, and thoroughly dried) as shown — small diameter facing out.



4. All spaces between rollers have now been packed. Always work in steps, using small amount of Marfak Heavy Duty each time. Too much will so cover bearing as to prevent telling when grease has been worked in properly.

More than

presents MILTON BERLE
on television
every Tuesday night.
METROPOLITAN OPERA
radio broadcasts every
Saturday afternoon.



TEXACO

REDUCE MAINTENANCE COSTS with TEXACO MARFAK HEAVY DUTY



2. Turn bearing over (so large diameter faces out) into hand holding *Marfak Heavy Duty*. Work lubricant into spaces between rollers by kneading with fingers. Continue until it comes through on small diameter side.



3 Small diameter side of bearing, showing how Marfak Heavy Duty has been worked all the way through spaces between rollers. Repeat working-in operation around bearing until all spaces between rollers have been packed.



5 • Hold bearing as shown and spread additional Marfak Heavy Duty around the outside. Use enough to cover the tops of rollers with about 1/8-inch of lubricant. Spread evenly and smoothly.



6. Here is a bearing properly packed with *Texaco Marfak Heavy Duty*. Such a bearing will have full protection during the scheduled repacking intervals, plus many thousands of miles of additional bearing life.

350 million pounds of Marfak have been sold!

Lubricants and Fuels

CONFERENCE CORNER

PRESENTING FACTORY ENGINEERS' VIEWS ON TIMELY SUBJECTS OF INTERESTS TO FLEETS

Subject: Oil Reclaiming Question: Is It Practical?

Lubricant specialists say—No, Reclaimers will not remove the contaminants without also effecting removal of additives. However, the reclaimer makers report that it is satisfactory to use 50 per cent new oil with 50 per cent reclaim

Reclaiming Methods Remove Valuable Additives

by A. E. Smith and C. F. Foell

Socony-Vacuum Oil Co.

BEFORE discussing the merits and limitations of reclaiming and the methods available, it is necessary to review briefly the over-all problem involved in bringing a used engine oil back to a satisfactory condition. On first thought, this may appear to be sim-

ply a matter of removing the contaminants. However, the problem is not that easy and actually becomes quite complex when heavy-duty oils are involved.

Today's heavy-duty engine oils, as already explained, contain refinery blended additives, or special materials of various types, such as pour-point depressants, viscosity index improvers, corrosion inhibitors, antioxidants and detergents. None of the reclaiming systems using chemical or adsorption-type purifying agents will remove the contaminants in the oil without also effecting removal of the additives. Therefore, a heavy-duty oil cannot be brought to its original condition unless the additives removed are restored to the oil after reclaiming. This is practically an impossibility for the fleet owner because additives must be specifically matched to the oil, an undertaking that requires experience, skillful control and extensive evaluation of the resulting lubricant in actual engines under actual operating conditions. Refiners marketing heavy-duty oils are obliged to continuously check on the compatibility of base oils and additives and the performance therefrom.

With any method of reclaiming which comprises only a mechanical separation of insoluble materials, only a partial reclamation is accomplished. Contaminants, such as the soluble acidic materials, metallic salts, gums and resins, fuel, combustion residues and water, all remain in the oil.

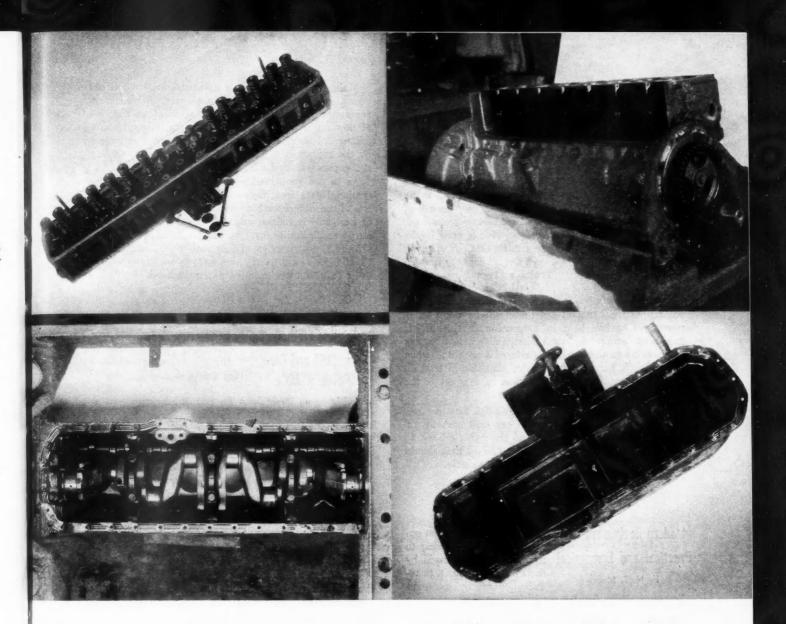
With the more elaborate systems employing an adsorption or chemical agent, in addition to a mechanical filter, a more thorough reclaiming is usually accomplished. Not only are the insoluble materials removed, but most of the soluble acids, gums and salts are also eliminated if the process is conducted properly. However, in the case of additive oils, it must be remembered that the additives are also removed, in effect leaving only a base oil and one not suitable for further heavy-duty application.

With systems employing heat and vacuum in addition to the above steps, for removing any fuel and water, destructive cracking of the oil might occur if temperatures are too high or the exposure period too long.

It is seen from this that in the case of straight mineral oils it is possible to restore them relatively close to their original condition by means of an elaborate reclaiming system, operated properly and carefully.

In the case of heavy-duty oils, it is very evident that reclaiming destroys any chance of returning them to their original condition and making them suitable for continued heavy-duty use. The addition of the right amount of proper additives is a further required step and, as emphasized elsewhere, this is not easily accomplished since proper additive and base oil compatibility requires extensive laboratory tests and field evaluations. No additives have been developed which have the same degree of effectiveness or impart the same properties in different base oils, and purchase of additives by users for compounding into reclaimed oils of untested characteristics is a risky procedure, espe-

(TURN TO PAGE 103, PLEASE)



After 122,000 tough miles, engine looks like this...

• These bus engine parts have seen over 122,000 miles of hard service. They have not been cleaned but are shown exactly as they came from the engine. Nevertheless, they are entirely free from deposits that would interfere with satisfactory operation.

Here is visible evidence of superior lubrication by STANOLUBE HD Motor Oil. The benefits of this lubrication have meant important savings for the Arrow Coach Lines, Ottumwa, Iowa. Mr. Robert Galpin, manager, reports: "We started using STANOLUBE HD Motor Oil in our 17 buses in September 1945 and since that time have doubled our engine life (between complete overhauls). We attribute this largely to cleaner-running engines."

The advantages offered you by STANOLUBE HD go hand in hand with the benefits of an automotive engineering service that's unique in the Midwest. The Standard Oil Company has located practically at your doorstep a specially trained and

Stanolube HD Motor Oil

experienced lubrication specialist. This man will give you an "on-the-spot" engineering service that's vital to fleet operations. His headquarters are the nearest Standard Oil Company (Indiana) office. You can obtain his assistance by contacting that office or writing: Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY (INDIANA)



Conference Corner

Continued from Page 6

for Satisfactory Operation times regarding the use of

by W. A. Palmer, Secretary Burt Mfg. Co.

Add 50 Per Cent New Oil WE have been asked the same question many reclaimed crankcase oil, and we wish to state in the beginning that our oil filter will not reclaim the natural color or completely purify the oil. Our oil filters will, however, remove all foreign

substances from the oil but there will be some finely pulverized carbon held in suspension in the oil. It has been proven by tests that this carbon is not detrimental to the working parts of a machine when reused. It is our recommendation that this filtered oil be used as makeup oil rather than as new oil in the fleet operation.

When using filtered oil we recommend that the user use 50 per cent new oil and 50 per cent makeup oil when refilling the crankcase of the vehicle. By so doing you are adding new body to the oil that should then give satisfactory operation in the vehicle.

Modern Reclaimers Are Practical and Economical

by H. T. Moore Youngstown-Miller Division Walter Kidde & Company,

MORE and more fleet operators are turning to re-refined oil, processed by their own equipment, to reduce operating expenses without any sacrifice in performance. The old objection that "once lubricating oil had been in service it broke down and could

not be restored" has long since been disproved. The re-refining of lubricating oil is now pretty generally accepted as sound and thrifty practice by most large users of oil. Modern re-refining equipment, incorporating vast improvements over oil reclaimers of twentyfive years ago, has proved itself capable of restoring used lubricating oil to practically new oil propertiesas originally refined.

A recent survey gathered data from companies operating more than 800 trucks, cabs and other vehicles. and using re-refining equipment that ranged in size from 6-gal batch machines to large 55-gal units, all of the semi-automatic type. The largest operator reported that he saved 90 per cent of his oil by re-refining, the smallest operator reported saving 75 per cent of his oil. One fleet operator of 81 vehicles reported a saving of 100 gal of oil per week with re-refining equipment. The average cost of re-refined oil of all companies investigated was 12½ cents a gallon.

Re-refined oil helps to reduce maintenance costs by keeping the lubricating oils in perfect condition, according to most operators using such equipment. Since the operation and maintenance of re-refining equipment is often included as spare-time work in the daily duties of the fleet lubrication man, no separate labor charge is allocated to the re-refining equipment in many cases.

Maintenance costs can be lowered, obviously, if old crank case oil is replaced frequently. Without rerefining equipment this is not economical, as the cost of new oil is more than the saving in reduced maintenance. Users of re-refined oil, however, can benefit by the reduction of maintenance costs while avoiding the expense of new oil.

As to the quality of re-refined lubricating oils, operational data from fleet operators indicate that there is so little difference between the viscosity and gravity of new and re-refined oils that it is, for all practical purposes, insignificant. Actual analysis in one case showed viscosity index of new and re-refined oil to be 93 and 87, respectively; and gravity of re-refined oil to be only .6 lower than the new parent oil.

Reclaiming Methods Call for Skill and Care

by D. P. Clark General Manager Direct Sales Gulf Oil Corp.

I THINK we have to recognize, at the start of any review of reclamation of re-refining, the probability that there is a usable portion of lubricating oil in any batch of used oil. In this respect at least, the salvaging of the usable portion within practical limits is plainly feasible.

However, as to the volume percentage represented by the usable portion of lubricant within a batch of used lubrication oil, no general statement can be made. There are so many variables or combinations of variaables involved in the use of the original stock, that you might estimate the usable portion at 80 per cent, 60 per cent, 40 per cent, or a very low percentage at all.

This fact is self-evident to anyone bearing in mind the fluctuating amounts of non-petroleum contaminants-such as water, soot, dust, metallic parts, etc.affecting each batch of used lubricating oil. Also, a differing extent of chemical change, depending on type and severity of service, has taken place in certain portions of the lubricating oil itself, since it is hardly possible to use a lubricant without subjecting it to influences which cause oxidation and the formation of oxidation products.

In view of these conditions, the only way in which the reclaimable percentage can be determined in advance is by a laboratory inspection of the used lubricating oil. We, therefore, can approach the subject with the premise that while there is probably a usable portion of lubricating oil in any batch of used lubricant, the quantity can vary percentage-wise from a very low per cent to 90 per cent. This factor certainly affects the economic aspects of oil salvage.

A number of small batch units are manufactured for the purpose of reclaiming lubricants from used oil. They are designed, I believe, primarily for use in individual operations, where the used lubricating oil is carefully segregated.

However, I would venture to advance the opinion that operation of these units requires higher ability than plant jobs normally placed in the hands of common labor. Skill and care are called for. To the same degree that no refinery operations are infallible, as evidenced by our own refinery control laboratories, neither are these machines infallible. Even granting some skill on the part of the operator, he would lack, in most cases, any sort of scientific control to assure

(TURN TO PAGE 132, PLEASE)

to use WAGNER brake products!*

here's why...

*Wagner Lockheed is the best known and largest selling hydraulic brake fluid on the market

- A proven product . . . Used by vehicle manufacturers
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 . . . Reduces inventory
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- Maintains chemical characteristics after long use
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- Mixes with all other approved fluids
- Does not evaporate rapidly

- Meets or exceeds S. A. E. Specifications
- Is non-injurious to skin
- Does not corrode or rust the system
- Does not cause cups or hose to swell
- Forms no gummy residue
- Nationally advertised in POST and COLLIER'S
- Has consumer acceptance . . . first in brake fluid sales
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- Warehoused internationally through 25 Wagner branches
- Available everywhere through leading jobbers

You can depend on Wagner quality because Wagner products are used as original equipment by automobile, truck and trailer manufacturers.

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SERVICE NOTES

Briefed for Fleets From Manufacturers' Bulletins

● Chevrolet ● Rochester Carburetor

The new Rochester carburetor is being used on all 1950 Chevrolets, except cab-over-engine models. It will fit all Chevrolets from 1932 through 1949 in addition to the 1950 models.

This carburetor has a concentric float bowl so that regardless of any shifts of the fuel level, due to road incline or sudden stoppage, the fuel level is always below the nozzle spill point, eliminating fuel loss thus mnimizing the possibility of stalling.

Elimination of fuel percolation is claimed to result from the design of the main well support assembly, consisting of the passageway to the nozzle, the power valve and the main metering jet, which is completely surrounded and insulated by the cooler fuel in the float bowl. This prevents manifold heat from being conducted directly to the main passageway, which would otherwise cause percolation.

A new type pump plunger with a ball type check built into the plunger head also allows the hot vapors in the pump system to by-pass the ball and circulate back into the float bowl, instead of percolating into the engine.

The carburetor has been designed to give a continuous fuel flow to the engine by the use of a common passage for both idle and main metering systems, thereby eliminating any momentary lag which occurs in types where the fuel flow changes direction from the idling to the main metering system.

The use of a vacuum-operated power system in the carburetor makes power mixtures readily available without being dependent on the degree of throttle opening.

Servicing features of the carburetor include the elimination of metering adjustments, a permanent idle tube that is built into the unit at the factory and a fixed type main metering jet that eliminates orifice wear. All of the main metering parts are in the cover, making it possible to service or inspect the float, the float valve assembly, the main well support assembly and the power valve assembly by the simple removal of the four cover screws.

● Studebaker ● New Oil Control Piston Ring— 9G, 2R5, 2R10, 2R15

A new and improved oil control piston ring developed for 9G, 2R5, 2R10, and 2R15 engines has a pressure spring which fits behind the ring and tends to maintain the proper ring pressure throughout the life of the piston ring.

Steering Knuckle and King-Pin—M5

The greater king-pin and bushing area in use on the 2R5 and 2R10 model trucks can be obtained for the M5 truck by installing the 2R Series steering knuckles and king-pins. The advantages in making such an installation are increased ease of steering and longer potential life of the parts involved.

The following parts are required to make the conversion: Part Nos. 677604, 677605, 678171.

Diamond T Combination Brake Liners

Brake liners currently furnished with Timken axles equipped with "P," "W" and "TW" series brakes and Eaton 18501 series axles are a new combination type having increased efficiency.

The following part numbers indicate the proper brake liner kits for different brake applications in the Timken "P," "W" and "TW" series, and in the Eaton 18501 series axles.

COMBINATION LINING SETS

Series	Size	Part Numbers	Axle Application
P	161/2×4	46360F	SBD 1555P
P	$16^{1/2} \times 6$	16360M	Q-200P, Q-300P, R-200P, R-300P, SD-3010P, SW-3010P, SW-3012P.
P	16½x7	26360M	R-200P, R-300P, S-200P, U-200P, U-300P, SW-456P, SD-462P, SFD-460P.
W	171/4x51/2	46360M	SD-462W
TW	171/4x3	6360M	35100TW, 36021TW, 36020TW, 27460TW.
Eaton	161/2×51/2	36360F	A-1 and A-6 18501 Series

The OVERLOAD

EDITORIAL COMMENT

Do Trucks Fly 97 Per Cent of Their Mileage; Bust Up the Roads the Other 3 Per Cent?

For a good many years this publication, along with many friends in the trucking industry, has been seeing red when folks, who ought to know what they are talking about, say trucks cause great damage to the highways.

Everyone knows how the story goes. Route umpty-up carries a lot of truck traffic and wears out fast. Route umpty-down has practically no trucks, lasts forever. So, by "axiom 1," the story says, trucks are to blame.

But there's a very dark face in that wood-pile. How come only part of the heavily travelled highway wears out so fast, particularly around the joints in the pavement and where the route traverses swamp, or unsettled ground conditions? Other sections, on firm ground, and unaffected by bad joints stay in good condition.

Until last month there was a joker in the answer to that one, too, simply because no one had actual facts to support it or refute it. But now the facts are available, thanks to a study just completed by the New Jersey Motor Truck Association.

One phase of the 18 months survey was of particular interest. It consisted of a series of inspection trips covering 1780 miles of New Jersey highways carrying the heaviest truck traffic loads. Included were Routes 25, 26, 28, 29, 17 and 6.

On the most critical sections—previously reported in questionable condition—three highway

experts made the inspections. They were Prof. John S. Worley of the University of Michigan, and William Van Breeman and Halbert E. Phillips of the New Jersey State Highway Department.

Each checking on the other two, the trio kept a meticulous log of those parts of the highway which were good, and those parts which showed any serious deterioration or damage. Of the total of 1780 miles, how many were bad? Fifty miles, or slightly under three per cent.

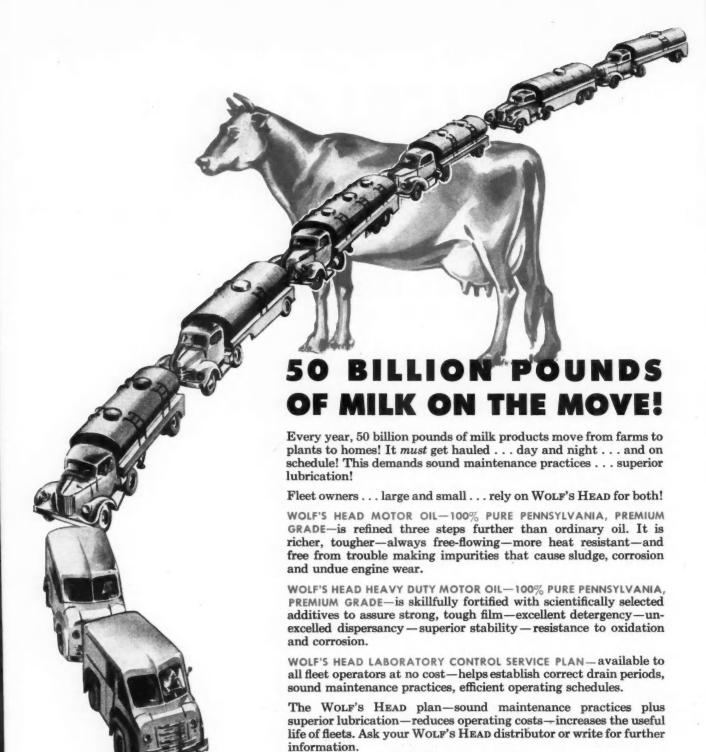
All this in a state that has a legal axle loading, not of 18,000 lb., not of 22,400 lb., but of 34,400 lb. (provided maximum tire size is used).

"If the damage to this small section of the highway system was caused by trucks," the report contends, "the damage would be uniform over the highway sections carrying the heaviest truck traffic. Instead, miles and miles of sound highways immediately precede and follow damaged sections.

"In most damaged sections," the report further states, "deterioration consisted largely of failure at the joints of concrete pavements. In most cases, this failure resulted from collection of water under the joints because of improper drainage, improper sealing of joints or soft soil insufficiently compacted and graded."

Need we say more? Only to add—state and Federal legislatures, Governors and the railroads. please copy!

Bart Rawson



Wolf's Head Oil Refining Co., Inc. Oil City, Pa., New York 10, N. Y.

MOTOR OIL AND LUBES



100% Pure Pennsylvania
"Premium Grade"

Member, Penna, Grade
Crude Oil Association



WASHINGTON RUNAROUND

by GENE HARDY Washington Correspondent

Canadian Weight Limit Stops Alcan Mail

Highway weight limits are not the exclusive plague of the trucking industry. They sometimes rise up to bother Uncle Sam. The Post Office Department reports that it has discontinued trucking mail over the Alcan Highway to Alaska because of load limitations imposed "by the Canadian provincial governments."

Assistant Postmaster General Aiken recently told a House Committee that contract carriers on star route service were carrying about "30,000 lb of mail per load. Then the provincial placed a load limit of approximately 28,000 lb gross. That cut down the net weight of mail that could be carried so seriously that it meant the contractor would suffer a great loss and that we could not move the mail expeditiously. So we mutually abandoned the project."

A year ago, Mr. Aiken told the same committee that mail was being trucked over the Alcan Highway "at a cheaper price than we can haul it by steamship, and we are handling it more efficiently."

Now, mail is hauled to Alaska by ship, then it goes to Fairbanks by rail and from there is distributed to communities along the highway.

Military To Use Standard Trucks

The three military services are "beginning to utilize commercial-type vehicles, instead of the much higher first cost and operational cost tactical type vehicles, wherever practicable," according to General Joseph T. McNarney, Chairman of Defense Dept.'s Management Committee. The Defense Department also has embarked on a replacement program of over-age vehicles, for which it is hoped Congress will grant funds that will see the job done over a five-year period.

For the coming fiscal year, the Defense Dept. has requested an appropriation of \$46.7 million for about 9066 tactical vehicles, and \$19 million for about 9149 commercial trucks.

BPR Speeds Brake Tests

The initial field work of the Bureau of Public Roads cooperative program of brake research is in the home stretch. Phase 1, involving tests on vehicles selected at random from the general traffic, has been completed. This phase covered some 1200 vehicles in Maryland, California, and Michigan. The data is now being analyzed by the Bureau and it is likely that a report will be issued before the rest of the work is completed. This data will be comparable with the Bureau's prewar studies.

On the newer portions of the research program, work is progressing rapidly. Phase 3 tests, controlled tests on used commercial vehicles, will probably be completed by late summer. These tests have been finished on the West Coast, where 20 truck operators cooperated in the work. The Southeastern area is now the locale of this phase. The tests will move into the Eastern States by early spring and into the Midwest during the summer.

Phase 2 tests, new commercial vehicles, are being conducted by the AMA's Brake Technical Committee, using the same test procedures as those established for the other phases. The data obtained will be correlated with the results of tests on phases 1 and 3 by the Bureau of Public Roads.

Case for Excise Tax Repeal Strengthens

Official 1949 tax collection data reveal that sales of the commodities and services bought and sold by the trucking industry, and affected by federal excise taxes, dropped well below 1948 levels with only two exceptions—automobiles and gasoline.

For example, the tax on transportation of property yielded \$17.7 million less last year than in 1948. The levy on transportation of persons brought in \$13.7 million less

Excise tax collections on trucks and buses dropped \$21 million; parts and accessories brought in \$30.7 million less; tire and tube taxes dropped \$12.6 million; and lube oils yielded \$1.5 million less.

These figures give added support to those members of Congress who maintain that repeal or reduction of excise levies on these commodities and services would eventually bring in more revenue, since sales would increase substantially.

Tax collections on automobiles and motorcycles increased \$173.4 million and on gasoline jumped \$5.7 million. Neither of these increases were unexpected because of the record auto output achieved last year.

Highway Mail Service Expansion Held Up

It has been revealed that the Budget Bureau eliminated the Post Office Department's request for additional funds to expand the highway post office service in the fiscal year 1951. However, Congress may still grant additional money, since it is recognized that communities without adequate rail service, or where rail service has been discontinued or curtailed, still must have mail.

Post Office experience with the highway service
(TURN TO PAGE 130, PLEASE)

NEW MILEAGE MASTER OF THE HIGHWAYS!



THE NEW KELLY



Multiplies Mileage—Cuts Costs

- Extra tread thickness.
- Deeper non-skid design.
- Thicker rubber undertread.
- Tougher Armorubber compound.
- Improved road contour—wide, flat tread.
- Continuous center ribs—easy steering.
- Heavy, well-ventilated shoulders.
- Sharp-angled ribs—better traction.
- Interrupted grooves resist cutting or tearing.
- Extra strength body—better for recapping.



PROVED AND IMPROVED FOR 56 YEARS

Here at last is a truck tire job-designed for highway hauling and inter-city transport—where longer tread wear is essential.

The new Kelly Commercial Heavy Tread is specifically built to give greater tread mileage on driving wheels of tractors, where wear is heaviest. That's why it's what every trucker wants —a lower-cost-per-mile tire!

And because of an extra amount of rubber be-

neath its specially designed non-skid pattern, it's better for recapping.

That means greater total mileage and lower total cost-per-mile—when final figures are added up!

So, if you find you're rolling up thousands of tire miles per truck per month, it will pay you to equip your fleet with the new Kelly Commercial Heavy Tread!

THE KELLY-SPRINGFIELD TIRE COMPANY, CUMBERLAND, MARYLAND

WEAVIN' WILLIE, OUR CITY DRIVER, SAYS: "THE MORE I LOOK—AND I DO LOOK—THE MORE I REALIZE THAT HONESTY IS NO LONGER THE BUST POLICY."

CCI

Two cockroaches were lunching in a dirty sewer. One was talking about the spotless new Truck Driver's Diner which had recently opened in the neighborhood and from which they had been barred.

"I hear," said one cockroach, "that the refrigerators shine like polished silver, the floors sparkle like diamonds and the dishes have the lowest bacteria count in the state. Why the place is so clean . . ."

Why the place is so clean . . ."
"Please, please!" interrupted the second cockroach, "Not while I'm eating!"

CC.

THERE'S METER IN MUSIC,
THERE'S METER IN TONE;
BUT THE BEST PLAN TO METER
IS TO METER ALONE.

CCJ

Brake Specialist: "What is it that has horns, a long, pointed tail, and carries a pitchfork?"

Carburetor Specialist: "I give up. What is it?"

Brake Specialist: "I don't know, either, but it's been following us ever

since we left that last bar."

ce

The auto parts clerk and his wife went to their family physician for a yearly checkup. The wife went into the office first and a little later the doctor came out shaking his head, "I don't like the looks of your wife," he said to the parts clerk.

"Neither do I," answered the parts man, "But she's good to the children."

CCJ

Bus Driver's Wife: "Is this the office of the Fidelity Insurance Company?" Switchboard Operator: "Yes, madam,

to whom do you wish to speak?"
Bus Driver's Wife: "Well, I want to have my husband's fidelity insured, just connect me with the proper party who handles such affairs."



LAUGH IT OFF

The owl-shift truck mechanic had just been firmly but quietly ushered out of a refreshment emporium. He wobbled uncertainly across the street to the edge of a small lake. Swaying back and forth, he looked intently down into the water, until an officer came up and demanded to know what he was doing.

"Jush lookin' at shumpin' in th' lake,

osshifer."

"Well, just what are you looking at?"
"I dunno, what is't, osshifer? Please
tell me."

The officer looked at the lake and said, "It's the moon, you fool!"

For awhile the stricken truck mechanic was silent in perplexed and serious meditation. Finally he said, "Thash funny. If tha's the moon down there, what'n th' hell am I doin' up here?"

Wife (trying on new spring hats): "Do you like this one turned up?"

Rate Clerk Hubby: "How much does it cost?"

Wife: "Twenty dollars."

Rate Clerk Hubby: "Turn it down."

CC

STENO LOU: "I'M THROUGH WITH LEAD-FOOT PETE."

STENO SUE: "HOW COME, DEARIE?"

STENO LOU: "I HEARD HIM TELL JACK
THAT HE TRIED OUT ETHYL IN HIS NEW
TRACTOR-TRAILER RIG LAST NIGHT."

CCJ

Personnel manager to newly hired steno: "Now, I hope you thoroughly understand the importance of punctuation."

"Oh, yes," the sweet young thing replied, "I always get to work on time."

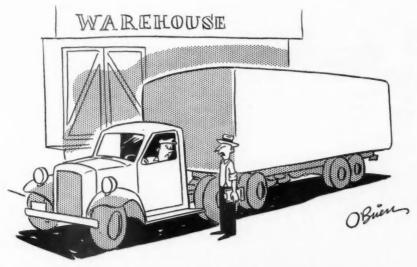
CCI

The long distance van driver was growing a little road-weary, so he pulled the unit safely off onto the shoulder of a pleasant stretch of Vermont country road. Lighting up a fag, he gazed around about him and saw a farmer over to his right in a field removing rocks. Thinking to have a little fun, he stepped from his cab, walked over to the fence and said: "Nice crop of rocks you raised there, Hiram. Where did they come from?

"Glacier brought 'em," grunted the farmer without even turning.

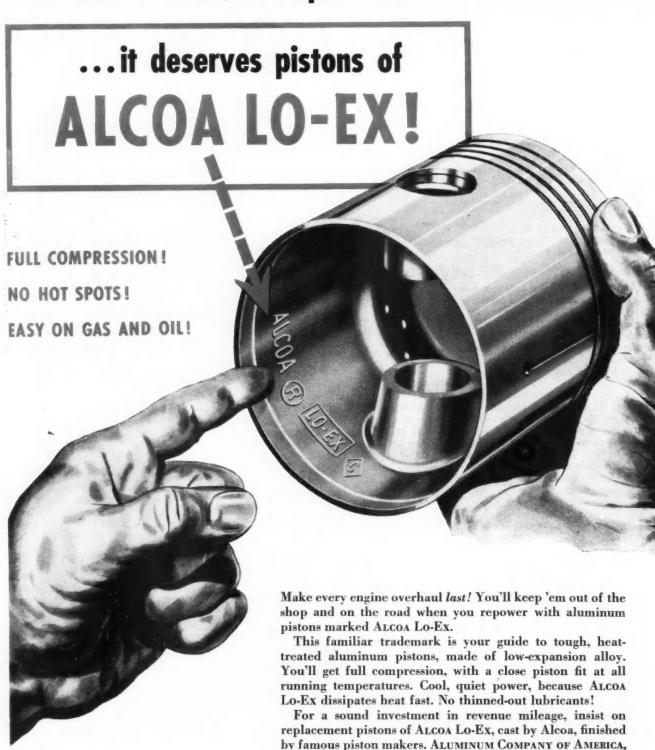
"Oh, the glacier, eh?" the van driver teased. "Where's the glacier, now?" "Well, if you're really interested. sonny," snapped the farmer, "I'll tell you. It's gone back after more rocks."

Resume Work



"I don't want to hear of you taking any corners on nine wheels!"

If a motor's worth a pull-down





Aluminum Pistons of ALCOA LO·EX

1847C Gulf Building, Pittsburgh 19, Pennsylvania.

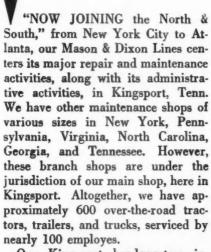
FEATURE | SECTION



INTAINING the



Maintenance Superintendent Mason & Dixon Lines, Inc., Kingsport, Tenn.



Our Kingsport headquarters includes an administration building, terminal building, driver and safety building, salvage and tire storage buildings, and the main repair shop. All of these buildings are comparatively new and embody features to reduce cost, improve working condi-

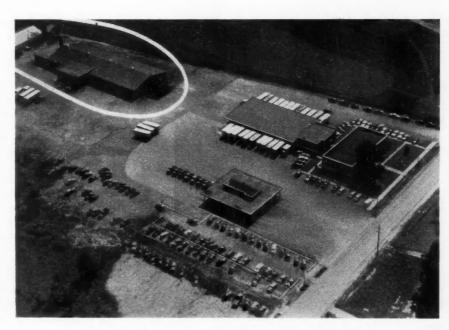
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Aerial view of Kingsport headquarters showing main shop in circle at upper

left, separate salvage and disassembly building above it. Driver, administra-tion, terminal buildings in foreground

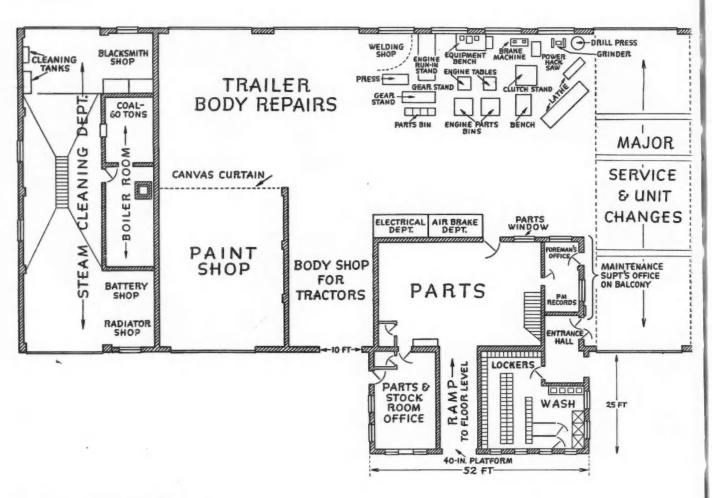


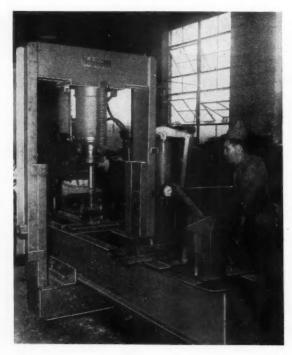
Here, in one issue, is the complete story of how a major eastern fleet, with over 600 vehicles, keeps its equipment at peak operating efficiency





POSTWAR SHOP DEPARTMENTALIZED





LEFT. 125-ton hydraulic press located in gear department can handle any job required tions and insure top quality work from all.

Principal Maintenance Shop

THE largest building on this site, from the standpoint of floor space, is our main fleet shop. It is 230 ft long and 75 ft wide. At the central

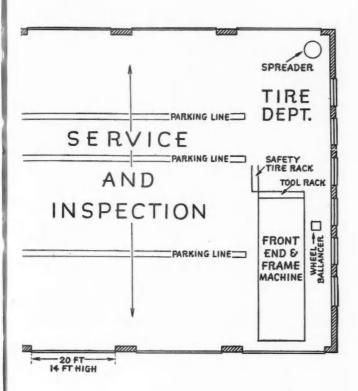
portion, we have an additional area of 25 ft x 52 ft.

Before we laid out any working space in this new building, we decided on full-scale departmentalization for peak efficiency. This decision was based upon more than 10 years' experience with work procedures and methods. Although there have been revisions here and there, on the whole, the result has been satisfying and successful.

Full-scale departmentalization of a fleet shop requires that each department be carefully fitted into an over all design. There must be a steady work flow, trouble free and near automatic, to feed work to each department.

We decided on a total of nineteen departments. These are:

FOR PEAK EFFICIENCY

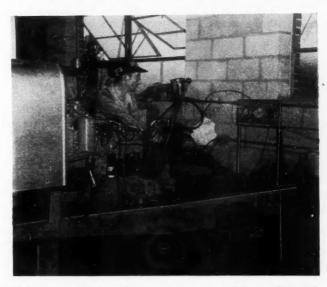


Kingsport shop features large unobstructed service section, at right, where each 20-ft door accommodates two tractors. Parking lines assure access to all units. Rebuild and parts departments are clustered in center; trailer rebuilding and paint shop at left. Steam cleaning, radiator and blacksmith shops are at far left, separated completely from main shop. Disassembly, salvage, upholstery, woodworking and glass shops are located in an adjoining building

Service, inspection and tune-up; engine rebuilding; welding; gear; machine shop; battery; radiator; body and metal; steam cleaning; parts; electrical; air brake; paint; alignment and frame; tire; and blacksmith, which are located in the main shop building. Then there are the glass; woodworking and upholstery, and salvage (TURN TO PAGE 52, PLEASE)

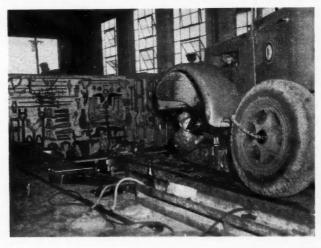


ABOVE. Fork-lift truck has many jobs. Here it is lifting tractor for rear-end and spring repairs. Lift also is employed in expediting the movement of engines, parts, tires and equipment throughout entire shop and terminal areas



ABOVE. Engine break-in stand constructed from old truck frame is equipped with radiator, outside exhaust, transmission and drive shaft through wall connecting to a large two-bladed fan, enclosed in 5 x 5 ft concrete cubicle

BELOW. Front-end and frame alignment equipment is located in one corner of the shop. Jigs and fixtures are mounted on board at the head of work bay. Accessibility to these parts results in high productivity





ONE-STOP SERVICE

Thanks to portable lubrication and tune-up equipment, and a fork lift truck that doubles as a lift when needed, all service operations from a daily check to a major inspection can be accomplished at any spot in tractor service area. This prevents backlog of equipment waiting at any particular lane and eliminates all need for jockeying

and disassembly departments, which are located in a separate building, seen in the extreme upper left corner of the aerial photograph.

Layout Embraces Work Flow

IN THE main shop building, we allotted permanent working space to each of the departments and furnished them with the proper equipment and facilities. Working spaces were laid out with consideration for the type of work, its weight and bulk, distance to its work source and the distance involved in delivering its products to other processing departments or to parts storage. As an example, unit repair and the parts department are adjacent to the area devoted to major service and unit changes.

However, in planning work flow, time and distance are not always the most important layout features to be considered. This was true in the case of steam cleaning. We placed this department as far away as was practically possible, and separated it from the rest of the shop by a solid wall. Parts that go to this department are dirty. With the solid wall as a barrier, dirt and refuse are kept out of the shop. A flow of only clean parts into the main shop, and its departments, is the result.

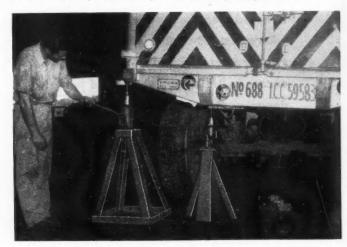
Since radiators have to be steam cleaned before they can be properly tested and worked on, the radiator department naturally fell in place next to the steam cleaning department. With the thought of isolating annoying odors, the battery and blacksmith departments also were placed in the steam cleaning section of the building.

Adjacent to the wall separating the cleaning section from the main shop area, is the paint shop. One 20-ft wide door leads to this shop. A portable canvas curtain and another solid wall isolate this department from the tractor body shop and the trailer body repair area. A 10-ft wide door opens into the tractor body shop and



ABOVE. Modern engine tune-up tester is rolled to location for one-stop service. Here it is being used to check timing

BELOW. Standard hydraulic jacks on top of welded steel stands lift trailers for underbody inspection

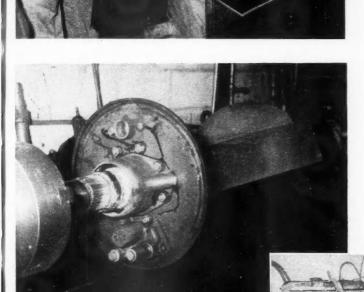


two 20-ft wide doors lead into the trailer repair area from the opposite side of the building.

The additional area in the center front, was utilized for a parts and stockroom office, and locker and washroom. A ramp, dividing this area, leads down to the main level of the parts storeroom. The foreman's office and PM records are next to this room. In a glass-enclosed balcony above the parts storeroom is the maintenance super-

REBUILDING MAJOR UNITS

When engines or other major components are scheduled for rebuild, they are removed from tractor in service section, carried to salvage shop. There parts are disassembled, inspected, steam-cleaned and placed in special wooden cases ready for rebuilding in appropriate department. Engine rebuild section finds all usable parts in case, draws rebuilt or new parts and accessories from stock



TOP. Welder being used for fifthwheel rebuild. Fire resistant curtain hangs on portable pipe frame

ABOVE. 18-in lathe located in machine shop handles even a complete axle housing to machine welded builtup surfaces

RIGHT. Finishing radiator repair and cleaning. Note repaired core section

A 125-ton arbor press is located in the gear department, the latter for overhauling and rebuilding transmissions and differentials. The electrical and air brake departments are placed next to the parts storeroom.

The remaining half of the main building is clear floor space, measuring 75-ft by 75-ft. This area is devoted to service, inspection, tune-up and tire changing. One far corner contains the tire department and the other houses our heavy-duty frontend alignment and frame machine, and the wheel balancer.

Service and Inspection

THE main service area has four 20ft wide overhead doors on each
side, directly opposite each other.
Parking lines are laid out on the floor
to assure proper spotting of the vehicles and open lanes to allow free
passage for our utility fork-lift truck.
Each 20-ft wide entrance permits two
units to enter and park side by side.

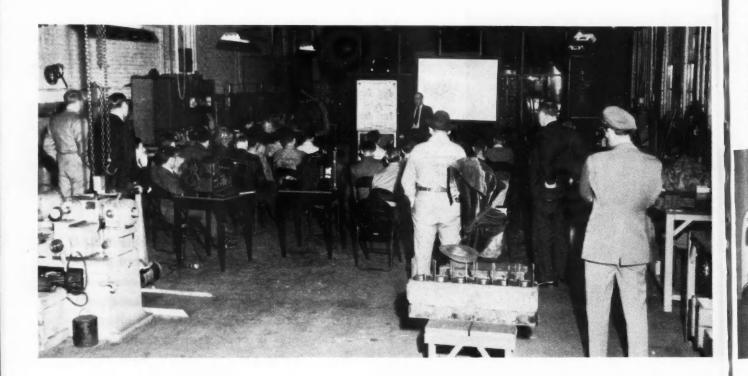
The first two service lanes next to

the engine rebuilding area and the parts room are usually reserved for major service and unit changes. However, because of the wide doors on either side of the entire area, any routine inspection, lubrication, daily check or major repair work can be performed on any unit in the entire area without changing its position or tying up any other vehicles.

(TURN TO PAGE 121, PLEASE)

intendent's office. From this balcony, he commands a view over the entire shop and can tell at a glance which units are being serviced and which departments are in operation.

Opposite the parts room is the gear, welding, machine shop, and the engine rebuilding departments. A drill press, power hacksaw, brake drum machine, two lathes, and the engine break-in stand are located in this area.



MECHANIC TRAINING

Boosts BUS MAINTENANCE

EVERY SUPERINTENDENT can think of maintenance men, rated as first class mechanics, whose quality of work is so dissimilar that he would not give them identical jobs. One might be fast and very satisfactory for disassembling, reassembling and installing such units as clutches, transmissions and rears. The other mechanic may be slower but especially good for more exacting work, such as making the more critical final adjustments, engine tune-up, and similar precision work.

Similar differences can be found in men of like caliber doing identical work. Of two men assigned to tune bus engines, one will be more exacting than the other.

Sometimes these differences will have no practical effect—at least not enough to permit saying that one method will result in thousands more trouble-free miles than the other.

There are times, however, when differences in maintenance procedures and practices of mechanics in a shop can lead to many difficulties, sometimes hard to discover and correct.

Uniform Shop Standards Needed

W HILE it is desirable to have men with different skills in each shop, it is not desirable that similarly skilled mechanics work to different standards of quality. All inspection mechanics, lubrication men, tune-up men, unit overhaul mechanics, and all other shop personnel should have one definite set of standards for maintenance quality.

This objective may seem easier to propose than accomplish. It implies a thorough education program—one that requires as much "unlearning" on the part of some men as learning—and that implies all kinds of obstacles and problems.

By J. S. Wanstall

Superintendent of Equipment, Delaware Coach Co.

Admittedly, there are several problems. Perhaps one of the first is to find suitable up-to-the-minute instruction material with visual aids. Then there's the need for enthusiastic support by the personnel. Time, place, the use of inside or outside instructor pose other problems.

Adequate Material Available

MOST vehicle manufacturers are glad to cooperate with any mechanic education program. They know that proper and intelligent maintenance of their vehicles contributes to satisfactory operation; which, in turn, places them in a strong position for repeat business.

It is well known that these manu-

LEFT. Classroom scene in the unit rebuilding department of the Delaware



Quality

facturers publish Operator's Manuals which explain the general operation of the vehicle and contain many maintenance and service hints. They also publish supplementary service bulletins which give detailed repair procedures for most of the vehicle's component parts.

The preparation of these manuals and bulletins represents the best available knowledge on the maintenance of the particular parts or component units. It is a shame that, in too many cases, this valuable maintenance information is put in filing cabinets instead of passing it on to the mechanics, where it really belongs. Periodic training and refresher courses provide one means of bringing the maintenance staff up to date.

In addition to manuals and booklets, many manufacturers prepare excellent wall charts showing design and construction features of the various component parts of their vehicles.

Establishes uniform maintenance standards, increases accuracy of unit adjustments and repairs, gives mechanics needed confidence

Many of these manufacturers also prepare moving pictures and "still" slide films designed to acquaint vehicle owners (and prospective owners) of the various principal features and maintenance characteristics of their vehicles.

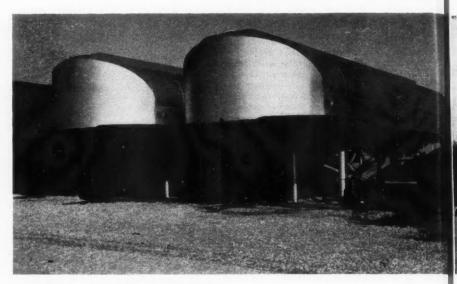
Much of this data can be obtained free of cost. Some material, like the motion picture and the slide films, can be borrowed or purchased, at a nominal cost. In the case of the films, it is usually necessary to rent a projector from a local photographic supply house, although the manufac-

turers' dealers in the larger cities may offer to supply a projector and operator to assist the instructor, if so desired.

Where properties have several makes of vehicles in their fleets, it will be best to obtain instruction material for the vehicles of which there are greatest in number. After these are thoroughly covered, instruction on the next make then can follow. If complete instruction films covering the entire vehicles are not available, it will be best to procure films for (TURN TO PAGE 152, PLEASE)



Interior view of Fruehauf 45-ft trailer showing Alcoa aluminum corrugated lining and magnesium flooring



Single-barrel, 4000-gal tanks of J & L Otiscoloy steel are typical of new high stress steel units designed to save weight

Light Weight Materials are Heavy on Assets

Magnesium, aluminum, high-strength steels offer savings in body weight, more payloads. Light material is used successfully for flooring, axles, hubs

Magnesium Saves Pounds for Profits

by G. K. Glaza The Dow Chemical Co.

AS LONG ago as 1934, trucking concerns were well aware of magnesium's advantages of light weight and inherent strength for the fabrication of truck bodies. In those days, however, high initial cost was a major factor in limiting the use of "the lightest of all structural metals" in truck fabrication.

Today, improved techniques in the actual production of the metal and its

fabrication have resulted in a more competitive price situation for magnesium sheet, extrusions and castings. Moreover, the highway transportation industry over the years has shown appreciation for magnesium's light weight and other structural properties.

Light-weight, high-strength magnesium alloys offer the transportation industry an opportunity for increasing pay load and decreasing operating expense. With the maximum weight of a loaded vehicle limited by law, it is apparent that each pound of dead weight removed from the structure will increase the maximum legal pay load by one pound.

If general freight is hauled, there is certain percentage of trips on which heavy freight brings the gross weight up to the maximum permissible, even though load carrying space remains available in the vehicle. By multiplying the number of such trips per year by the average freight rate charged, the operators have arrived at figures that represent the value through each year of operation of each pound of dead weight removed from each unit. This reasoning has led to a new expression, the "premium per pound of weight saved" that an operator can afford to pay to save weight in his equipment.



Use of aluminum bodies together with new loading and unlading techniques has upped profit margins for grain and feed haulers

Below. Magnesium freight van with a 30-ft body is light enough to be used with Ford chassis

A Symposium by:

G. K. Glaza

Technical Service and Development
The Dow Chemical

R. E. Conlee

Development Division Aluminum Co. of America

Don G. LaRue

Development and Engineering Div.
Permanente Products Co.

E. K. Waldschmidt

Jones & Laughlin Steel Corp.

Fuel and Cargo Savings

Often this figure has been startling to the operator. For instance: One tank trailer operator found that his total cost (gas, oil, tires, depreciation, driver, insurance, etc.) in his gasoline hauling operation was \$0.18 per mile for a 4200-gal unit. His books revealed that he drove this unit 125,000 miles during the year. He divided \$0.18 by 4200 gal to find that his cost per mile per gallon of gasoline delivered was \$0.000043.

d

He then reasoned that if he could replace some of the dead weight on his unit with payload, his operating cost would not increase since gross weight would remain the same. Thus he would realize an additional revenue of \$0.000043 plus profit for each mile he delivered one extra gallon of gasoline.

Multiplying \$0.000043 x 125,000 miles, he found that each extra gallon of capacity would bring an added return to him of \$5.38 in revenue each year. Since gasoline weighs approximately 6.2 lb per gallon, he divided \$5.38 by 6.2 and concluded that he could amortize the initial cost of a lightweight unit at a higher yearly rate than he could heavyweight equipment, this increase in rate being \$0.87 x the difference in weight in pounds of the two transports. Operating economies in gasoline consumption, tire and engine wear, license fees, etc., occurring when the transport is running empty, raise this figure considerably above \$0.87.

A hauler of general freight found that, if a unit weighed 1000 lb less than his standard steel units, on one trip out of four, or 28 trips per year, he would be able to replace that 1000 lb with extra cargo. This is because of the diversification of cargo carried. Figuring his average revenue at \$0.68 per 100 lb, this would produce \$190.40 per year.

Introducing at this point the fact that he amortizes equipment over a three-year period, he determines that he can afford to pay a maximum "premium per pound of weight 3 x \$190.40

saved" of ______, or \$0.57.

Again, operating economies when the unit is running light will considerably increase the \$0.57 figure. Weight saving that costs less than this allowable "premium per pound of weight saved" represents profit to the operator.

Another company found that when a lightweight magnesium van panel type of truck body was mounted on a chassis from which a heavy steel body had been removed, the firm saved 4 gal of gasoline per day on a typical run of 165 miles through hilly country. On a six-day week, this truck makes approximately 300 trips a year, saving a total of 1200 gal of gasoline. At \$0.25 per gallon, this totals \$300 per year.

There has been a change to higher strength steels to permit the use of thinner and, consequently, lighter sections. There is a limit soon reached

(TURN TO PAGE 58, PLEASE)

Light Weight Metals are Heavy on Assets

Continued from Page 57

to the advantage gained from these higher strength, high density materials. This is because the wall thickness of structural members must remain sufficient to prevent buckling and denting and to retain general ruggedness which depends as much upon the thickness as upon material strength.

The use of lower density materials such as aluminum and magnesium, with utilization of thicker yet lighter sections, provides a practical way of obtaining strong and rugged structures that are lighter than steel. Aluminum has demonstrated its usefulness in this regard for transportation equipment. Now magnesium goes further and makes possible the elimination of even more dead weight resulting in greater profit or lower rates.

Magnesium's adaptibility to the industry is not confined to wrought products. Cast truck and automobile wheels, wheel hubs, brake shoes and brake spiders, landing gear brackets and a number of other parts have proved the serviceability and sound economic competitive position of magnesium.

Light Weight Floors for Trailers

by R. E. Conlee Aluminum Co. of America

EXTRUDED light weight floors have recently become a subject of great interest to many freight trailer manufacturers. Since strict enforcement of the various state vehicle weight regulations has resulted in considerable pressure to reduce weight, the fact that an aluminum extruded floor combines high strength and light weight makes its position particularly attractive.

There are several arguments in favor of an aluminum extruded floor:

1. It is possible to obtain maximum strength at minimum weight.

It is a permanent floor and should last the life of the trailer if proper corrosion prevention procedures are practiced.

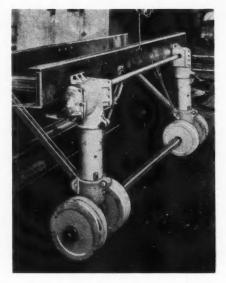
3. It is a rigid floor, and, when securely attached to cross members, greatly increases the strength of the entire understructure of the trailer.

4. It is possible to order floor components to the exact length desired.

There are also some arguments which might be used against an aluminum extruded floor. These arguments, together with suitable replies are:

1. Such a floor is too expensive. It is true that when the initial cost of an extruded floor is compared to the initial cost of a 11/4 in. oak floor (which comes closest to having the same strength as the extruded floor) the premium paid per pound of weight saved appears high-from \$0.55 to \$0.75. However, when it is considered that a wooden floor has to be replaced several times during the life of a trailer, the premium paid to save weight becomes relatively small. Manufacturers have reported replacing wooden floors anywhere from 3 to 10 times during a trailer's life. For only a 3-time replacement the premium paid for light weight is reduced to \$0.30 to \$0.40, not including the cost of the labor involved. Of course, further replacement of wooden floors reduces this premium even more.

2. Such a floor is difficult to repair. It is felt that an extruded floor would be no more difficult to repair than any other metal floor. Also, in view of the extruded floor's high strength, there



Fruehauf landing gear is completely aluminized. Typical weight saving for the four wheels alone is 44 lb.

would probably be very few, if any, instances of blows strong enough to damage the floor to the extent that part of any "board" might have to be replaced.

Aluminum Axles Cut Weight

A LUMINUM dual drive axles with worm gears that weigh only 1170 lb are now being made available to truck builders and fleet operators for highway trucks and as conversion units by Freightliner Corp. of Portland. This dual drive axle with the complete suspension installed (less tires, wheels, inter-axle drive line and oil) weighs just 3370 lb. Longer life, softer ride and lower maintenance, are also features of this assembly.

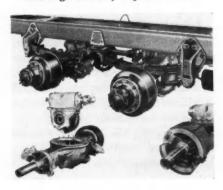
Through the use of heat treated aluminum-alloy axle housings, differen-

(TURN TO PAGE 134, PLEASE)

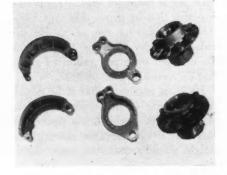
Sand cast 10 x 20-in. (tire size) experimental magnesium wheel weighs 54 lb and replaces a 114-lb steel wheel



Worm gear drop-in unit and Freightliner light weight aluminum alloy axle housing assembly replaces steel



Magnesium wheel hubs, brake shoes and spiders developed by Shuler Axle Co. reduce weight by 300 lb



COMMERCIAL CAR JOURNAL, March, 1950

BRAKES DON'T SQUEAL

on Ohio Valley Buses

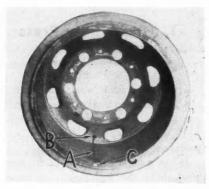
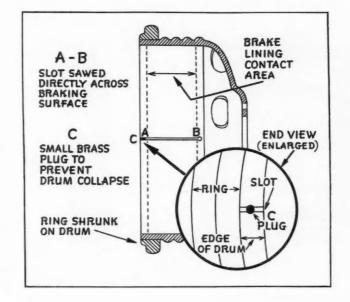


Fig. 1, Above. Actual modified test brake drum removed from vehicle. Slot A terminates at drilled hole B. Plug at C prevents collapse of slot Fig. 2, Right. Details showing how drums are modified with transverse slot A-B across braking surface, plug at C, and the separate outside ring.



By Max Dach
Superintendent of Maintenance
Ohio Valley Bus Co., Huntington, W. Va.

SQUEALING BRAKES have been eliminated on our property and there is no mistake about this. Maintenance men know that there is a cure for almost any problem; if one thing does not work another will.

There seems to be one accepted theory, that a non-resonant brake drum will not squeal—or at least not amplify the noises created by the braking action. Working on this premise, I have been experimenting with various methods of making drums non-resonant.

The cure or idea was provided by the sound of a cracked glass, which can be considered analagous to a cracked drum. A sound drum, or glass, will "ring like a bell" when struck sharply, whereas both, will have a hollow, dead sound when cracked. They have no resonance. Slot cut across drum's braking surface cuts resonancy, deadens frictional noise

After much development, that produced more or less satisfactory results, I finally constructed one which has no resonance and will not squeal under the most severe conditions.

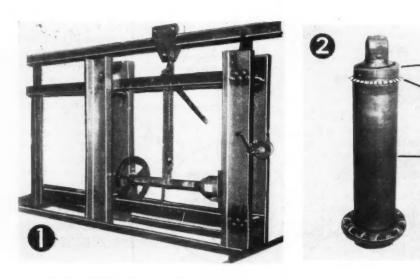
This drum is a modification of a standard type. The lip or raised edge on the outside diameter of the large opening, is machined down to the regular thickness of the drum at the braking surface. A slot is cut across this surface, as shown in Figs. 1 and 2, and terminates in a drilled hole as shown at B in both illustrations. A ring is placed around the drum to restore the original portion of the drum which was machined away. In some drums it has been found neces-

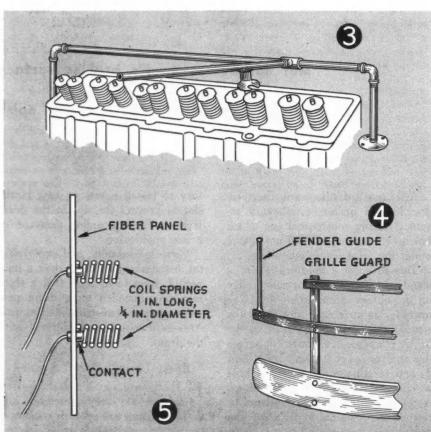
sary to install a pin, or key, in the slot to prevent the slot in the drum from collapsing under pressure of brake application.

Performance tests, and experimental installations on buses over a long period, seem to indicate that a separate ring installed on a drum provides greater resistance to internal stresses than one cast integral with the drum.

Brake Lining's Life Increased

IT HAS been found that brake lining life has been increased, and that the drums are operating at lower temperatures. Records from one test (TURN TO PAGE 156, PLEASE)





1. Heavy-Duty Press

by Clinton B. Baker State Roads Commission Easton, Md.

I designed and built this press to use in pressing work on long shafts, gears, etc. It will also handle heavy work too difficult to get in a con-

ventional upright press.

It has a capacity up to 12 ft., overhead dolly the full length of travel. movable ram consisting of a 50-ton jack mounted on a plate and raised or lowered by a crank and ratchet. The photograph will show construction details. Specifications will vary with the installation.

2. Hydraulic Cylinder **Packing Tip**

by Preston R. Coleman Alan Wood Steel Co. Norristown, Pa.

Our mechanics always found it quite a job to install sets of packing on hydraulic hoist cylinders because most packing has a sharp wiping edge which snubs while you are forcing it past the packing lock ring

threads in the cylinder.

Here's the way we overcome this. We made a circular band out of thin tin 2. and placed it into the cylinder just far enough to cover the threads. One edge of this band is serrated or notched, and it is bent at right angles so that it can't slip into the cylinder 3. Thus you can slip the packing 1. past the threads of the cylinder one ring at a time with no trouble.

3. Valve Depressor

by Geo. F. Burnley Oakland, Cal.

A simple, inexpensive jig such as this valve depressor will save a lot of time when working on overhead

from FLEET SHOPS

valve jobs. Frame of this jig is made from ¾-in. pipe, with elbows at the corners and support flanges as shown to hold it to the work bench. The depressor is made of ¾-in. pipe with a Tee reamed to fit over the pipe. The contact for the valve is made from strap iron notched to fit over the valve stem. This piece is welded to the pipe handle approximately 4 in. from the Tee. When fixed to the bench this jig will enable the mechanic to remove valves quickly.

4. Fender Guide

by Frank E. Seftchick Brooklyn, N. Y.

The hoods on some of the new trucks are quite high, obstructing the right front fenders so that you can't tell how close you are to the curb or other obstruction.

To aid the driver we make a fender guide of ½-in, pipe cut to a suitable length and bolt it to the front bumper or radiator guard. A cap is threaded over the pipe to keep out water. However, for night driving you can install a socket and a small candlepower bulb for a guide.

5. Tail Light Contacts

by Raymond C. Howard Brockton, Mass.

We have had a lot of trouble keeping tail and stop lights in operation on our panel trucks due to the fact that the contacts on the rear door become worn or dirty and result in light failures, especially over rough roads

We have overcome this trouble by installing ½ x 1-in. coil springs over the original contacts and soldering them on permanently. This permits sufficient pressure to make contact even with wear in the door hinges.

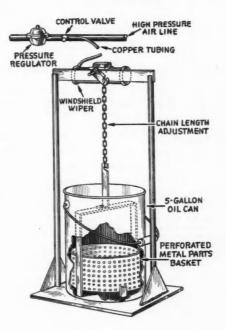
\$25 FOR THE BEST HINT PUBLISHED EACH MONTH . . .

\$5 FOR ALL HINTS
PUBLISHED EACH MONTH

\$25 Hint of the Month

SMALL PARTS CLEANER

by James S. Wanstall Delaware Coach Co. Wilmington, Del.



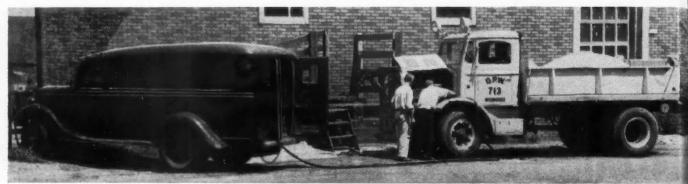
Here is a small parts cleaner that can be made up from odds and ends. It saves time and does a swell job. The heavy-duty windshield wiper motor mounted on a simple stand, operates a metal basket into which small parts are placed. The basket is suspended from the wiper motor arm by a chain, dipping the assembly up and down in a cleaning solution.

The stand is made of two 29-inlengths of 1-in. pipe, the upper ends being slotted to admit a piece of 2-in. plate 13 in. long. This is welded to the pipe, and the motor is mounted to it. The pipe uprights are welded to a base of 3/16-in. plate measuring 13 in. square. Braces for the supports are made of two sections of triangular plate welded to the base and to the pipe as shown.

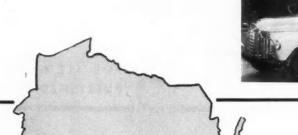
The parts basket is made from perforated metal, with 1-in. strap iron being used for the supports. Feet are provided from the same material so that the basket does not rest on the bottom, where dirt and grease accumulate. Slots in the basket support and in the wiper motor arm are provided so that chain length is adjustable.

Air is obtained from a high pressure line. A pressure regulator is necessary to keep pressure to the motor to requirements, and an off-on switch is cut into the line as the drawing will show.





Milwaukee has three field maintenance men who do on-the-spot repairs. Their trucks are equipped for a wide variety of repairs. Here, R. H. Stuckert is straightening a bent fender brace. Below, a new compressor





City of MILWAUKEE

Specializes

Its Vehicle Repairs

Better maintenance was achieved when repair work was concentrated and specialized in three of eight garages

By Harry R. Stiedemann

Superintendent, Bureau of Municipal Equipment, City of Milwaukee, Wis.

EDITORS' NOTE—Last month Mr. Stiedemann explained how the first step toward Milwaukee's program for achieving maximum efficiency and use of all its vehicles was accomplished by centralizing them under the Bureau of Municipal Equipment. The subsequent PM program and control system was outlined. The final step of coordinating major and minor repairs, general maintenance procedures, and the handling of road calls are explained in this article.

WHEN OUR PM PROGRAM was started, many of the vehicle operators objected—their cars were okay, they insisted. But trouble be-

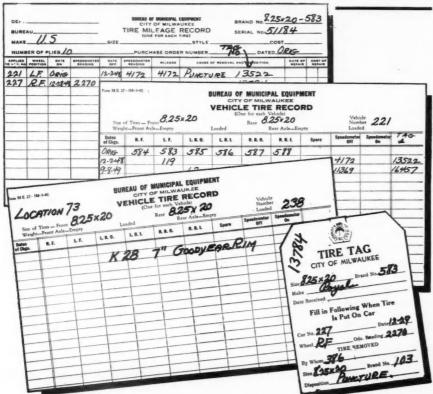
tween inspections soon sold them on our program.

To take care of automotive maintenance, we decided that, in the interest of efficiency and economy, it would be best to have certain shops specialize in the various phases of maintenance work we require. We have eight garages. Of these, three handle all major maintenance. The others do light maintenance and provide vehicle storage.

The Central shop, at 16th and

COMMERCIAL CAR JOURNAL, March, 1950





These are the various forms used for tire maintenance control. Top card is mileage record. Other cards show tires and location on each vehicle, and spare equipment for each vehicle with location designated to speed service calls. Last is tire repair tag

Canal, handles heavy-duty equipment maintenance. The Market St. shop takes care of all maintenance of light trucks, passenger and squad cars. Here, also, we concentrate tire maintenance and handle service calls. The South shop, at 31st and Cleveland, does trailer repairs, fender repairs and all other truck and cab work.

The other garages, located at 10th St., Wells St., Atkinson Ave. and 5th & Virginia, are used for storage, lubrication and minor repairs. The Ruby Ave. garage is used for minor repairs, washing and dead storage.

C. A. Niemann, equipment operation supervisor, has before him the names of all equipment operators. Behind him is Kardex system used to keep track of all the Bureau's vehicles and drivers

The dead storage section is heated to 40 deg, instead of the 60 deg temperature of the live storage garages.

The Ruby Ave. garage was placed in operation last November. Measuring 203 x 361 ft, it contains features which past experience has indicated necessary for efficient operation. It has, for example, an assembly room where employees may be instructed before going on duty. Also, there's an outside filling station, with seven pumps controlled by one attendant from an elevated position, to speed gassing and help eliminate driver

Tire Maintenance Practices

A S MENTIONED, tire repairs and service calls are handled by the Market St. garage. This plant is completely equipped with everything needed for this work.

To insure efficient tire maintenance, a thorough card record system is employed. There's a 5 x 8 in. card for every tire the city owns. Each new tire is branded with a city number. The tire card contains the brand number, serial number, size, number of plies, maker's name and columns for vehicle number, wheel position, date on, speedometer reading on and off and the cause of removal.

The tires on the various vehicles are kept track of on another 5 x 8-in. card. This gives tire size, position on vehicle, dates of changes and the city brand number. In addition, there is a column giving the repair tag number, so if there is any discrepancy, it can be checked. Another set of these cards shows size of tires, front and rear, kinds of rim or wheel and the location of the rack having spares for that vehicle. When a flat call comes in, these cards tell the kind of spare to take out.

A tire tag is made out when a man goes out on a tire service call. The tire size, brand number and make of tire going out are written on the tag. At the car, the vehicle number, date, wheel, odometer, brand number of tire removed, by whom and size are filled in. The tag is then attached to

(TURN TO PAGE 64, PLEASE)

. . . Specializes Vehicle Repairs

Continued from Page 63

the flat, and the man fixing it notes the cause of the trouble.

The tag then goes to the tire office and the information is posted on the tire and vehicle cards. The tags are then filed by their number, so any discrepancies can be checked the same as a bookkeeper does in tracing his entries.

The tire put on, will have its card posted with the vehicle number, wheel position, date and odometer reading.

The tire removed will have its card posted with the date off, odometer reading and cause of removal. Then the mileage on will be subtracted from the mileage off so the number of miles put on, while on that certain vehicle, can be recorded. By adding the mileage column, the total mileage can be determined if an adjustment is necessary.

The tag information is posted on the vehicle card in the same manner. The tire on that particular wheel is already listed. The date and the brand number is entered in its proper place. The odometer off and tag number is also entered. The city balances each wheel on a dynamic balancer after the flat has been repaired.

Two tire repair cars are fully equipped with an air compressor, an air-driven wrench and various jacks and tire tools. City cars do not carry spares unless they are going out of town. From 10 to 35 tire calls are received a day.

Three Field Service Men

WHILE the preventive maintenance program has eliminated a high percentage of mechanical road failures, we have three field service men. in ton-and-a-half panel trucks, who are both repair men and supervisors. In addition, we recently put on two instructors who break in new men and study service call reports to determine why certain equipment is not standing up as it should. The instructors are skilled in operating all types of equipment, and they see to it that it is being operated in a way to minimize repairs.

Field service men telephone the dispatcher every half hour on a staggered basis. They usually work in their own territory but in an emergency go anywhere. The trucks have welding equipment, tools and the spare parts that experience has indicated necessary. At present, they use police phones but a two-way radio is under consideration.

Card records at the dispatchers office supply the mechanical and battery information so field men can be instructed in what types of parts are needed before going on the call.

The Bureau is aggressive in correcting any abuse to equipment. Field service men have authority to remove truck drivers who are not driving properly or who are damaging the equipment in any way. For example, we stopped a city car going through a stop sign one day and asked him why he did it. The driver, over whom we have no jurisdiction, explained that a city car was just like a police car and did not have to obey traffic rules. We located the man's supervisor and a quick conference corrected this erroneous idea.

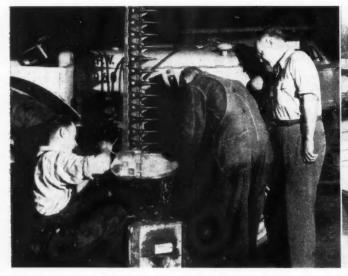
Most of the abuse is due to a lack of knowledge, and cooperation is usually gained by explanation. In cases where a good technician from another department is a very poor driver, all the Bureau can do is to make the best of it.

Service calls vary from 5 to 27 a day depending on the amount of construction being done, the weather, the age of equipment, and so on.

With the purchase of 460 new trucks since 1947, the average age of equipment is down to 14 years. Older (TURN TO PAGE 114, PLEASE)

Maintenance of municipal vehicles covers many different kinds of specialized equipment. Below, at left,

mechanics Mullock, Boncel and foreman "Mike" Ryan tackle power mower. Below, at right, is vehicle storage yard





Replacement Parts-REAR AXLI

Axle Shaft and Differential Life AVERAGES OVER 100,000 MILES



SURVEY NO. 16

Axle performance generally satisfactory, with shafts averaging 118,042 miles and ring and pinion gears 110,990. Two-speed unit life averages 89,627 miles

Analysis by A. W. GREENE, Managing Editor, Commercial Car Journal

CONSIDERING THE FACT that a great many of even the nation's best operated and best maintained fleets, buses excepted, are prone to overload their vehicles, rear axles today appear to be quite dependable and give their users satisfactory mileage under their wide range of operating conditions.

As shown in Table 1, the average life of an axle shaft is 118,042

miles. The range of mileages reported varies from 10,000 to 400,000 miles.

As frequently pointed out, this series of surveys has been designed to determine the average life of the various major parts of commercial vehicles, not operation or maintenance practices. It can only be presumed, therefore, that overloading and not

51.638



104,817 MILES

FOR-HIRE CARRIERS.
FOOD DISTRIBUTION
GOVERNMENT
CONSTRUCTION AND MINING
INDUSTRIAL
PETROLEUM
PUBLIC UTILITY
RETAIL DELIVERY
TRUCK RENTAL
TRUCK AND BUS FLEETS, MIXED

Axle Shaft Life Averages 118,042 Miles

Table 1

Even though a few low mileages are reported, most fleets report satisfactory life for axle shafts.

Axle oil seals net 51,638 miles, bearings 89,187

118,042

10 - 500

173

AXLE SHAFT OIL SEALS REAR WHEEL BEARINGS **AXLE SHAFTS** Mileage Mileage Range Range Range Number of Fleets Reporting (Last 000 Omitted) (Last 000 Omitted) (Last 000 Omitted) Average Average Average 94,464 87,233 70,370 71,000 200 300 200 150 250 200 50 100 150 85 100 200 60 29 43 28 6 6 8 23 50 20 20 20 12.5 35 25 40 35 20 45 25 50 25 50 25 50 20 10 10 15 30 10 15 5 20 24 55,128 29,731 50,000 61,000 142.576 142,576 58,350 63,750 178,500 132,750 88,591 72,309 91,000 227,000 200 200 200 150 100 300 82,500 108,143 50.125 52.972 44.688 32.500 69.125 85,636 85,000 158 667

5 - 250

TOTAL AND AVERAGE......ALL VOCATIONAL GROUPS

VOCATIONAL GROUPS

89,187

20 - 300



improper maintenance is responsible for the low figures and the great span in the reported range.

Retail Fleets Show Lowest Shaft Life

IT IS interesting to note that the lowest life reported for axle shafts comes from the retail delivery group and not the common carriers, who are bearing the brunt of unfavorable publicity for overloading.

Of course, not all vocations included in the retail delivery fleets report low mileage for axle shafts. Department store fleets, for example, report an average well over the national figure; in fact, their mileage raised the average for the group. The lowest mileages are reported by the beverage-carrying fleets, with coal and ice fleets, as a whole, showing the next lowest.

While there is a rather wide range of mileages reported for the axle shaft oil seals, the difference between the various vocational group averages does not show too wide a variance. Only the government-operated fleets and truck rental fleets show a group average appreciably lower than the 51,638-mile national average. Incidentally, the lowest mileage of the range reported comes from the beverage fleets in the retail delivery group.

The majority of fleets show satisfactory life of rear wheel bearings. While there is the usual wide range of mileages reported, and only three vocational groups show averages better than the

national average of 89,187 miles, most of the groups report less than 10,000 miles difference.

Differentials Average 104,817 Miles

TABLE 2 shows the average life of the major driving parts of the rear axle. Because it is the practice of many fleets to pull a component part, such as the differential, at the first sign of trouble, and the practice of many other fleets to repair, rather than replace, such component units, information received on both practices are reported in Table 2. A similar method of reporting and analyzing has been employed in the previous studies. However, the facts reported in this table do not follow the pattern established by such previous comparisons.

In the past studies, the fleets that pulled component parts, such as transmissions and clutches, always showed a higher mileage than the fleets that repaired the individual parts of the components. The facts, in the case of differentials, are reversed. The fleets that replaced the entire unit, do so at an average of 104,817 miles. Fleets that replace ring and pinion gears, do so at an average of 110,990 miles.

The differential unit replacement practice approaches the ideal. In previous studies, the component unit was pulled, in most cases, quite a few miles after the mileage indicated to be the average life of the component's individual parts. These facts permitted no other conclusion than that the fleets that replaced the component unit must have been operating with some degree of inefficiency and, perhaps, with driver complaints, before it was replaced. In this case, only two fleet groups show a greater average life for the component unit than its respective major parts. Unit replacements at these mileages should catch, on the average, imminent road failures.

It is interesting to note that the average life of two-speed power units is 89,627 miles. Only 67 of the 186 fleets reported mileage information for these units. With one exception, and that in the truck rental group, enough fleets within each vocational group reported to provide an acceptable sampling.



Which Differential Parts Wear Out First?

Table 2 Pinion bearings and seals average a little better than 73,000 miles, ring and pinion gears average almost 111,000 and two-speed power units 89,627

118,042 MILES VOCATIONAL GROUPS	Number of Fleets Reporting	DIFFERENTIAL LIFE Mileage		PINION BEARINGS AND SEALS Mileage		RINGS AND PINION GEARS Mileage		TWO-SPEED POWER UNITS Mileage	
		FOR-HIRE CARRIER FOOD DISTRIBUTION GOVERNMENT CONSTRUCTION AND MINING. INDUSTRIAL PETROLEUM PUBLIG UTILITY RETAIL DELIVERY TRUCK RENTAL. TRUCK AND BUS FLEETS, MIXED.	31 43 29 6 13 8 25 16 5	50 - 300 50 - 200 20 - 160 45 - 125 25 - 200 50 - 150 50 - 100 100 - 200	130,565 111,000 88,571 86,250 96,250 89,000 83,889 80,556 100,000 140,000	40 - 175 20 - 200 10 - 120 35 - 125 15 - 100 30 - 200 25 - 100 20 - 150 50 - 200	78,769 76,122 57,596 80,000 66,063 76,821 73,100 66,875 74,000	40 - 400 32.5 - 300 20 - 160 75 - 200 25 - 300 50 - 270 30 - 290 15 - 200 100 - 300	123,769 104,077 73,900 133,000 143,667 132,000 95,000 86,755 111,000 228,250
TOTAL AND AVERAGE	186	20 – 300	104,817	10 – 200	73,384	15 – 400	110,990	20 – 225	89,627

Composition of Vocational Groups as Used in the Accompanying Tables

FOR-HIRE CARRIER—Motor Freight Operators in Local and Over-the-Road Service.
FOOD DISTRIBUTION—Bakery, Dairy, and Other Food Products fleets.
GOVERNMENT—State, County, Municipal, and Federal fleets.
CONSTRUCTION AND MINING—Building, Mine, Quarry, and Gravel fleets.
INDUSTRIAL—Fleets operated by manufacturers.

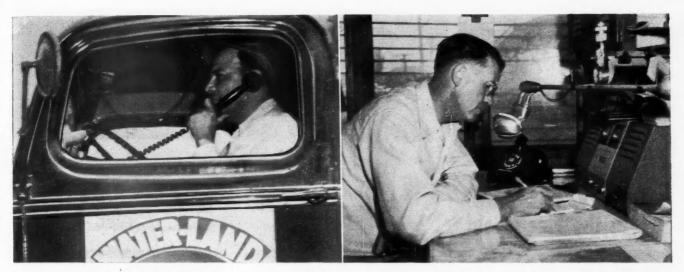
PETROLEUM—Production and Distribution fleets.

PUBLIC UTILITY—Gas, Power, Water and Telephone fleets.

RETAIL DELIVERY—(Other than Food Products), Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Store, Beverage fleets.

TRUCK RENTAL—Agencies leasing motor trucks.

TRUCK & BUS FLEETS, MIXED—Passenger carriers operating own truck fleets.



\$7000 investment keeps eight drivers and dock foreman in constant touch with dispatcher to speed pickups and deliveries

AN EXAMPLE of what two-way radio can do for a fleet operator has been demonstrated by Water-Land Truck Lines of 3540 East 26th St., Los Angeles, Cal. Since installing a radio control system in May, 1948, this operator has increased gross tonnage hauled each month from 4800 tons to 8000, and greatly improved the quality of service.

Because of precision control made possible by the radio dispatching, the fleet actually decreased mileage, while the almost doubled volume is handled with only five new trailers and no additional tractors. Furthermore, not one extra driver has been hired and dispatching still is handled by one man.

This increase in volume normally would require the purchase of at least three or four new tractors—many times over the \$7000 investment in the radio installation and the approximately \$50 a month operation cost. The installation cost can be written off by just getting one additional load each day, and Water-Land is doing much better than that.

Water-Land operates 47 heavyduty tractors and 90 trailers, which serve industrial accounts in Los Angeles and Orange Counties. Every day it moves 400 tons of freight in and out of the Los Angeles and Long Beach harbors.

Just eight pickup tractors, and the dock foreman's car, are equipped with two-way radio. The drivers and

Two-Way Radio Boosts Business, Cuts Costs

Fleet increases monthly tonnage from 4800 to

8000. Service improves, driver time-loss cut

By Phillip Brenton

their helpers, the dock foreman and personnel of the main office have restricted radio-telephone operator's permits issued by FCC.

Before the radio installation was made, Water-Land had all the business it could handle. Loading and unloading of ocean-going vessels is a precision operation where mistakes or loss of time are costly.

The harbor area is spread out over a 14-mile stretch, 25 miles from downtown Los Angeles and the company's main office. Working with only a telephone, and out of touch

with drivers and harbor foreman most of the time, it was a real problem to keep even 200 tons of freight flowing smoothly.

Emergencies and unexpected rush calls caused the trouble. When a rush pick-up order or an order not to pick up a shipment as ordered came in, there was nothing the dispatcher could do but wait until the driver called in.

Radio changed the picture entirely. The eight pick-up drivers and harbor foreman now are in constant contact

(TURN TO PAGE 100, PLEASE)



the Victim

PAINT SURFACES

Here are 12 examples of typical paint failures, illustrated and described briefly for the guidance of the refinishing department. As these pictures will show, dirt, moisture, grease, improper mixing, careless application and poor preparation of the surfaces are the chief offenders in finish breakdowns. If your jobs are showing evidences of the conditions described herein, use this material to run down the culprits and save recurring failures. Photographs and information were furnished by E. I. du Pont De Nemours & Co., Finishes Div.; The DeVilbiss Co.; Sherwin-Williams Co.; Ditzler Color Div., Pittsburgh Plate Glass Co.

Effect:

Lifting



Cause:

Applying lacquers over unaged or dry synthetic finishes. It may also be the result of improper drying between coats.

Cure

Clean surface before application, allowing adequate drying time between coats.

Effect:

Orange Peel

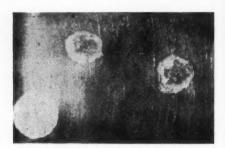


Cause:

Improper atomization or careless spraying methods. A thinner which drys too quickly will also contribute to this.

Cure:

Use recommended air presssures and proper thinning techniques. Hold gun at right angles and from 6 to 8 in. from surface. Use arm in full, long strokes.



Effect:

Shrinking and Splitting of Primer



Cause:

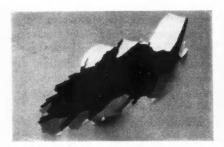
Improper cleaning of surfaces, improper feather-edging, piling on in heavy coats. Fanning air to force drying as well as insufficient drying time will also cause this condition. Application of paint to a cold surface will sometimes cause shrinking and splitting of the primer coat.

Cure:

Clean off wax, polish or grease and feather edge with fine sandpaper. Apply paint in medium coats and allow sufficient time for complete drying of primer.

Effect:

Poor Adhesion



Cause:

This may result from use of poor grade or wrong type undercoats. Failure to remove rust, grease, wax or moisture will also result in peeling of the paint

Cure:

Clean surface carefully or treat bare metal surface. Use recommended undercoats and allow sufficient time for drying.

COMMERCIAL CAR JOURNAL, March. 1950

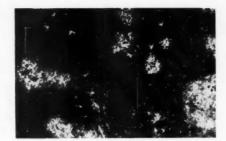
Effect: Wet Spots (left)

Cause:

Applying finish over a waxed or wet surface, or a surface damp from having been cleaned with gasoline. Heavy undercoating as well may cause this.

Cure:

Remove grease and wax preparatory to painting.



Effect: Rust Under Film (left)

Causes

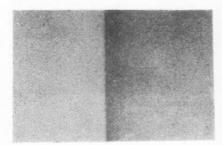
Failure to remove rust spots before applying paint.

Cure:

Sand all rust spots, smooth and treat bare metal with a metal conditioner. Wash with water and dry thoroughly. Prime the surface immediately after cleaning.

Effect:

Chalking of Lacquers



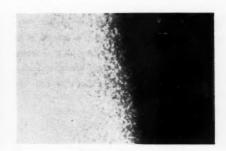
Effect:

Crazing, Cracking and Checking



Effect:

Overspray



Cause:

This is a natural failure caused by exposure to bright sunlight and inclement weather conditions. However, excessive chalking may be result of applying too many coats, insufficient binder, or application on a heavy porous undercoating.

Cure:

Rub and polish the surface to remove dead pigments, then wax. The use of a mist coat with a slower-drying thinner on a finishing job will enable the film to set better and aid in retarding chalking.

Cause:

Top coats may have been applied before under coats were dry, the top coat may have been applied in too heavy quantity, or the finish may have been applied over aged or cracked finish. Unbalanced thinners and paints with insufficient binders will produce a similar effect.

Cure:

Permit undercoats to dry thoroughly before applying colors. Apply several thin coats rather than a few thick coats. Remove old finish if it is checked.

Cause:

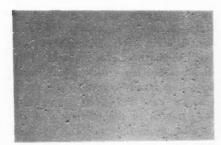
Finish forms a center line on cowls or turret tops when gun is held at an angle and further from surface than at other points of stroke.

Cure:

Spray side of vehicle on which overspray appears with a wet mist coat made up by adding several parts of thinner to the color left in the cup.

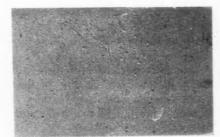
Effect:

Dirt Under Paint



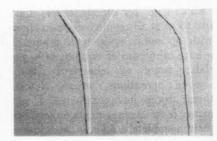
Effect:

Dirt Over Paint



Effect:

Runs or Sags



Cause:

Applying finish over dusty surface or painting vehicle while dirt and dust are present in booth or shop.

Remedy:

0

Tack-wipe the surface immediately before spraying. Keep booth and/or shop clean.



Keep areas free from dirt. Use drying lamps or ovens to dry painted surfaces before dirt settles on them.

Dusty shop conditions accompanying the

painting operation. Failure to make pro-

visions for quick drying of newly painted

Cause:

This may result from use of too much thinner, application of too heavy a coat, applying too wet coats.

Cure:

Follow directions on label of paint can and regulate fluid adjustment on spray gun to cut down flow of material. Hold gun at proper distance from the surface.

By Bart Rawson

To answer the ageless question, "What's happening NOW?" the writer brings his personal impressions gathered on a 3000-mile trip from the East Coast to New Orleans and back. He deliberately traveled the heavy-truck routes, U.S. 1, 70, 23, 29, 90 and 11. and made truck and bus fleet calls in Raleigh. Charlotte, Atlanta, New Orleans, Mobile, Birmingham, Kingsport and in-between points.—THE EDITORS.

IF WE WERE ASKED to single out any one current trend among large bus and truck operators in the southeastern section of the U.S.A., it would unquestionably be the marked swing toward diesel engines. After that would come the continuing influence of light-weight metals, particularly in trailer construction. With them both, there is the ever-present and ceaseless quest for greater maintenance efficiency and constant effort to whittle away at the all-important maintenance cost-per-mile figure.

But lest anyone think that there is uniformity in the way these fleetmen handle their operations, let it be remembered that some have gone "whole hog" for diesels, others don't like them at all; some believe in shops with optimum equipment, others in a bare minimum of equipment essentials; some wholeheartedly favor sleeper operations, others despise them; some have extensive driverowner lease arrangements, others ban them completely. These are just a few examples of things that have made our industry great through the medium of free competition and the ability of a 10-vehicle operator, eight years ago, to be running 500 units or more today.

Without entering into controversial subjects, let's examine some of the major trends as we noted them just last month.



TYPICAL of the trend toward dieselization and the use of light-weight trailers in the Southeast is this McLean Mack diesel with Fruehauf tandem

From New York

Diesels

OUR TRIP was particularly interesting in view of the fact that five years ago we visited with many of the same operators we talked to on this trip. Among the common carrier freight lines, only one had any diesel units five years ago. This time

only one did not.

Unquestioned leader of the southeast's diesel fleets is the McLean Trucking Co. with headquarters in Winston Salem, N. C. With more than 600 power units in operation, about 75 per cent of them are diesels. If you were to ask the McLeans how they got that way, the answer probably would be made up in four parts: 1. The fleet is relatively new in the big time. As units were purchased to expand the fleet, diesels were purchased-they didn't have to wait for old units to wear out. 2. Virtually all their runs are long hauls, where the

diesel has the best chance of paying off. Most manufacturers and operators will tell you that you ought to have close to 60,000 miles a year (or its equivalent in engine time) to be sure of paying off. 3. Most of the states through which the McLeans operate have fairly reasonable weight laws, so that the added weight of the diesel is not too critical. 4. Without revealing family secrets, their maintenance cost has been remarkably low, thanks to the efficiency of the diesel engines they use and of Modern Automotive Service, Inc., their subsidiary maintenance company headed by Dave Cravan. Like other diesel operators, the latter will tell you that, once the problem of injectors and fuel pumps is mastered, the diesel is just another engine and it need not and (our own observations concur) does not smoke.

Of course, the McLeans are not the



METAMORPHOSIS—"A Street Car Named Desire" is now a bus, New Orleans Public Service's way of saying goodbye to the street railway lines

to New Orleans...

Truck and bus operators have an eye on diesel power, light-weight equipment, increased maintenance efficiency and new periodic inspection techniques

only diesel users. We found the diesel engines by the fours, the sixes and the dozens in virtually every fleet. While the two-cycle diesel is the acknowledged leader among the bus fleets, its acceptance by the southeastern truck operator has been slow. Most of those we saw were isolated instances, often driver-owned. But the exception that proves the rule was Dixie Highway Express in Meridian, Miss., where

maintenance superintendent M. L. Parks showed us some amazing case records on their efficiency, both in maintenance-cost-per-mile and milesper-gal.

Light Weight

AT NEARLY every port of call we found an increasing number of light-weight trailers, either of the allaluminum type or the stainless steel type. Enthusiasm for both types was limited only by unfortunate experiences in design weaknesses which have since been largely overcome by the particular manufacturers involved.

Almost axiomatic with the acceptance of the light-weight trailer was the increasing trend toward the tandem axle. Lighter weights, mean bigger payloads, but bigger payloads usually exceed prevailing 18,000 lb axle load limits without the advantage of the tandem unit. While most of the newer trailers were being purchased as tandems, many of the old ones were being converted through the medium of conversion kits now obtainable from several makers.

No discussion of light-weight vehicles in the East would be complete, however, with a passing word about the largest fleet of them all-Associated Transport. Its Brown Aluminum trailers have been standard with this fleet for many years and, along with it, the new Brown tractors with many aluminum members. Already standard are such aluminum items as hoods, cab panel, headlight brackets, brake shoes and other parts. At the Brown Equipment shop, in Charlotte, we saw the start of 10 experimental tractors being fitted with aluminum frames, believed to be the first in the industry.

Maintenance Efficiency

BEFORE we started, we had an idea that the maintenance picture would be considerably changed from what it was five years ago, when "keep 'em rolling" was still the byword of the industry; a slogan necessitated by the shortage of both new equipment and replacement parts as a result of the war. Actually, we found the picture little changed. The ingenious shop devices and practices designed during the war years out of necessity were being carried over and improved upon during the peace years as an efficiency expedience.

Among just a few of the things we ran into were ingenious devices for loosening rear axle nuts, for pulling rear axle sleeves, for power-grinding brake linings, for breaking-in rebuilt engines, for aligning axles and frames etc. Purchase of shop equipment,

(TURN TO PAGE 110, PLEASE)



Public records are replete with countless instances of truck drivers aiding motorists. Here P.I.E. driver demonstrates common type of assistance

Rules of the Road Should Work Two Ways

When truck drivers try to do a good job, they should get fair treatment from the public and its law enforcement officials

By Kenneth N. Beadle

Director of Safety, Pacific Intermountain Express Co., Oakland, Cal.

EDITORS' NOTE: The logic of this article, direct from one of the nation's largest carriers should have far-reaching effect. All too often the finger of public opinion is pointed at the truck driver. But here the author shows why it should quite often be pointed the other way.

THE LONG DISTANCE truck driver on the payroll of a well-organized inter-city common carrier today must be familiar with and abide by literally hundreds of rules and regulations. Among these rules are Inter-

state Commerce Commission Regulations, state regulations and traffic laws, city laws and ordinances, and company rules and policies.

In addition, good truck drivers have an unwritten law unto them-

selves for getting along with their fellow drivers on the highway and elsewhere. A man with principle will never leave another truck driver stranded on the road. Hundreds of truck drivers will not pass up any motorist in distress, particularly in the West where there is many a long lonesome stretch between towns.

This man sitting behind a big steering wheel with a long unit behind him is working; this is his occupation, his profession. He is not out for a ride or making a pleasure trip. He knows where he is going, for his course is laid out for him. He must keep a steady pace for his cargo is on scheduled time. He must never exceed the speed limit, nor must he ever drive too fast for existing conditions. He has to adjust his driving to fit the situations created by many amateurs he meets on the road-the Sunday drivers, the tourists gaping at the scenery, and those who have had too many highballs, to say nothing of dozens of other types.

Many motorists on our highways today are not familiar with the roads over which they travel. Nor do they have the ability to judge speed or distance as well as a good truck driver. They blame the truck driver for crowding them on a narrow road when actually, the truck may be well over on its half of the road. Furthermore, they fail to realize that if this heavy-duty unit gets on to the shoulders, which, too often, are hazardous on many roads, the result would be loss of control due to the soft surface. Many a truck driver, who was over to the right as far as he could get, has been blamed for a sideswipe or even a head-on collision.

Another situation which puts a truck driver at a disadvantage is the illusion of speed due to the size and sound of a large truck. Not long ago a driver was accused of travelling 50 mph when actually he was doing 38, which was proved by the recording on the chart when removed from the tachograph. Such accusations however, come mostly from the pub-

(TURN TO PAGE 97, PLEASE)

Bendix Products Division

CREATIVE ENGINEERING

GEARED TO QUANTITY PRODUCTION

ANNOUNCES THE MULL BENDIX HAND CONTROL VALVE Jiner Beformance at a Lower Cost Than Ever Before!

Here is the valve that gives truckers the ultimate in hand controls for vacuum braking systems—but costs even less than ordinary models. The new Bendix Hand Control Valve is a simple, rugged unit with a clean, modern appearance that adds to the good looks of any cab interior. Its absolute dependability and consistent pre-

cision set an all time high for performance—and at a lower cost than ever before! Available with or without an integral, easy-to-read vacuum gauge, the new Bendix Hand Control Valve assures maximum flexibility with today's vacuum trailer braking assemblies. For complete details write the factory direct.



GRADUATES ACCURATELY



The new Bendix Hand Control Valve applies the brakes in amount exactly corresponding to where the handle is set—no more and no less—and the driver can depend on it.

ACTS CONSISTENTLY



Graduated braking is always the same, in application and release each time the valve is used.

BUILDERS

OF THE BASICS

OF BETTER

MOTOR VEHICLES

HOLDS A SETTING



When the handle is left in a fixed position, there is no tendency for brakes to creep on or off—no "leakover" when the valve is seated.

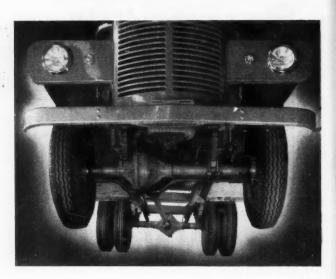
AND HERE'S WHY



This new hand control valve is a product of Bendix, greatest name in braking. Engineered and precision built, it delivers dependable performance under all operating conditions.



MODEL LD is offered in wide range of wheelbases, for on or off-highway use. Built-in utility type fenders and 97-in. all-steel cab characterize the line. RIGHT. Full-floating axle, spiral bevel gear drives and dual primary, vacuumassisted hydraulic brakes used



FWD Shows New 14,500-Lb MODELS

Light four-wheel-drive features new cab, improved engine accessibility, a 236.7 cu in. engine developing 97 hp at 3200 rpm

A LIGHT WEIGHT, four-wheel-drive truck developed by the Four Wheel Drive Auto Co., Clinton-ville, Wis., offers the versatility of both off-highway and road service in a 14,500-lb job. Powered with a Hercules QXLD engine with 236.7 cu in. displacement, 97 hp is attained at 3200 rpm. Standard wheelbase of Model LD is 136 in., but ranges include 124, 136, 148, 160, 172 and 184 in.

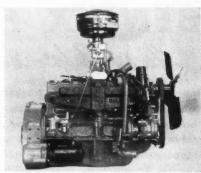
The new model features a 10-speed transmission—eight forward and two in reverse. Standard tire size is 6:50 x 20. Brakes are vacuum-assisted hydraulic, with a total lining area of 324 sq in. Chassis weight is 5550 lb, with cab.

Axles are full floating, spiral bevel

gear drive, of two-piece housing construction, and are equipped with the new dual primary brake. Transfer case, transmission and propeller shafts are similar to those used on all FWD trucks.

Built for lighter duty work this new model features several departures from present-day design. The chassis is entirely separate from the sheet metal work. Cab, skirts, fenders, hood and radiator shell are set on a sub-frame which is mounted at three points. Thus the entire assembly can be removed from the chassis with very little work. A minimum of strains is thus encountered, reducing rattles and working seams.

The all-steel safety cab is 70 in. wide. Floor boards are welded inte-



THE Hercules QXLD 97-hp engine, specially adapted to FWD requirements, powers the LD line

gral, with only a transmission cover plate fastened by screws. Cab is lined with hard finished felt lining to provide sound proofing and insulation. Seat is adjustable both for elevation and position. Instruments are grouped in front of the driver's seat.

Engine hood is of the doublehinged type so that the whole section can be lifted from either sideor it can be removed completely after release of the side locks. Running boards are part of the cab structure, with a new grip non-skid tread being used. Battery and tool box are mounted in the left hand skirt, while the gasoline tank is located in the right hand skirt compartment. Fenders are built in and are of the utility or angular type designed for rugged utility work. The headlights are likewise built in and are easily adjustable.

Initial applications are scheduled for highway maintenance, municipal service, oil field operation, general construction, telephone and line maintenance, and such operation where on and off-the-road service is anticipated.



Sealed Power

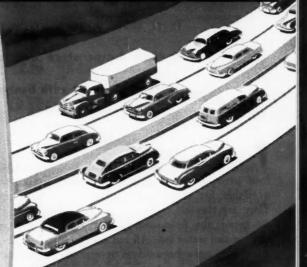
MD-50 STEEL OIL RING

The only ring with the FULL-FLOW SPRING

controls oil even in

BADLY TAPERED

OUT-OF-ROUND BORES



Double the Drainage with Half the Drag!

SEALED POWER CORPORATION MUSKEGON, MICHIGAN

Sealed Power Piston Rings

BEST IN NEW TRUCKS

BEST IN OLD TRUCKS



Tests show up to 25% savings in ice, positive temperature control, improvements in shipment with bunker equipment

AS IS WELL known there are four principal types of refrigeration available for truck and trailer use. They are the self-contained mechanical types, the hold-over plate types, dry ice and water ice. All but the last, water ice, may be used to meet the needs of either the deep frozen products, such as ice cream and frozen foods, or the medium refrigerated products, such as fresh meats and vegetables. For maximum efficiency all of them must have adequate insulation depending on the temperature range and distance of the haul; all must be carefully sealed against air leaks or heat losses through direct metal connection with the outside of the vehicle, and in each case the load must be properly precooled to the temperature required in transit and properly stacked to provide air circulation.

Much has appeared in this and

other publications with regard to the relative merits of the various types of equipment and much has been said about the proper use of insulation. However, there has been one phase almost totally neglected—namely how to get the most out of dry ice when that medium is selected. Recent tests have demonstrated that savings can be obtained with positive forced draft ventilation over a dry ice bunker.

Tests Show Merits

RECENTLY a running test was made to compare the two methods of refrigerating with dry ice. In one trailer 50-lb blocks of dry ice were distributed over the top of the load in corrugated cartons. In another trailer the dry ice was placed in four bunkers (two at the front and two at the rear) attached to the ceiling and fitted with blowers.

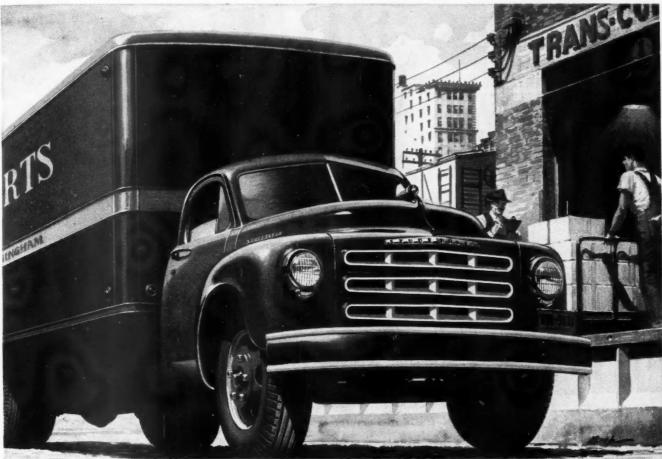
This bunker built by Foster-built Bunkers, Inc., Chicago, features an aluminum shell equipped with a sirocco fan designed to provide constant refrigeration from 200-lb of dry ice. Fourblock size is recommended for transport trailers, one four-block unit being used for every 10 ft of trailer length

Two identical 32-ft trailers insulated were loaded with 30,000 lb of butter and routed from Chicago to Boston. Both vehicles traveled together and due to delays in route were under refrigeration 94 hours. Outside temperatures were abnormally hot.

Truck A equipped with dry ice bunkers similar to those shown in the accompanying illustrations. It was initially iced with 800 lb of dry ice. Sixty hours later 400 additional pounds were added. The product at unloading was 43 2/3 deg, 1 deg lower than when it was loaded.

Truck B was initially iced with 1050 lb placed in 21 cartons on top of the load. Thirty-eight hours later it was re-iced with 200 lb and later with 400 lb. The product at the time of unloading was 45 deg. Thus 1650 lb of dry ice were required in this vehicle as opposed to the 1200 lb used in the vehicle equipped with this blower type bunker. A saving of 450 lb represents 25 per cent. In addition the bunker-equipped vehicle

(TURN TO PAGE 148, PLEASE)



2-ton shown with 15-foot van body—11/2-ton also available

New Studebaker ideas pay off in savings for truck operators!

YOU find important improvements in design that cut your operating costs, almost everywhere you look in a Studebaker truck.

The massive, pressed-steel Studebaker frame, for example, extends well beyond the rear axle for better load protection and longer body life.

The front of the frame is reinforced with a rigid, twist-resisting K-member—an exclusive new Studebaker method of strengthening the truck's forward structure. This also serves to provide extra support for the engine's front mountings and the steering gear.

Stop in at a nearby Studebaker showroom and get the complete "inside story" of Studebaker's progressive and resourceful truck engineering.

See for yourself why Studebaker trucks are saving sensationally and selling sensationally. This is Studebaker's 99th year of service on America's hauling needs.

STUDEBAKER TRUCKS Noted for low-cost operation



"Tops-in-thrift" engines of the truck world! Two great Stude-baker truck engines—the Econo-miser and the Power-Plus—deliver exceptional gas mileage, excel in horsepower and torque.



A cab that every driver likes! Steps are enclosed inside doors. Wide seat has Adjusto-Air cushion. Doors close securely on tight-gripping rotary latches. Foot-controlled cab ventilators.



Just lift the hood! Everything's easy to get at! No standing on a box to service! No stooping under the dash! Studebaker trucks come in ½ ton, ¾ ton, 1 ton, 1½ ton and 2 ton models.



Built to last by father-and-son teams and thousands of other conscientious craftsmen, Studebaker trucks really stand up. Stand-outs in staying power! Studebaker, South Bend 27, Indiana, U.S.A.

3	_	Type	_00000444007						
FRAME		Side Rail Dimensions							
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Truck Specifications

Showing New Models and Revisions Since Last Issue

The specifications of new truck models and revisions in current models noted below have been received from truck manufacturers since publication of the Commercial Car Journal Truck Specifications Table in the February, 1950, issue. Readers are requested to make note of these changes. The complete Table will be included in the April, 1950, issue.

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY COMMERCIAL CAR JOURNAL

Dodge

Gross Vehicle Weight for normal service on model B-2-C increased to 5800 lb. Front and rear tire size (max, auth.) 7.00/15. Model B-1-DU is equipped with 6.50/16 on the front and 7.00/16, single, on the rear. Model B-1-EU is equipped with 7.50/16 on the front and 8.25/16, single on the rear.

Brown

An additional Diesel unit, Model HRBB600T, has been added to the Brown line. It is powered by a Cummins HRBB600T rated at 175 hp @ 2000 rpm. Full details will be published in the April 1950 issue.

FWD

Model HA, maximum brake horsepower is 105 at 3000 rpm. Maximum Torque for models MTG, M10G and M6x6G is 590 lb ft. For model SU torque is 369 lb ft.

Kenworth

The accompanying table lists the complete specifications of the entire Kenworth line.

Reo

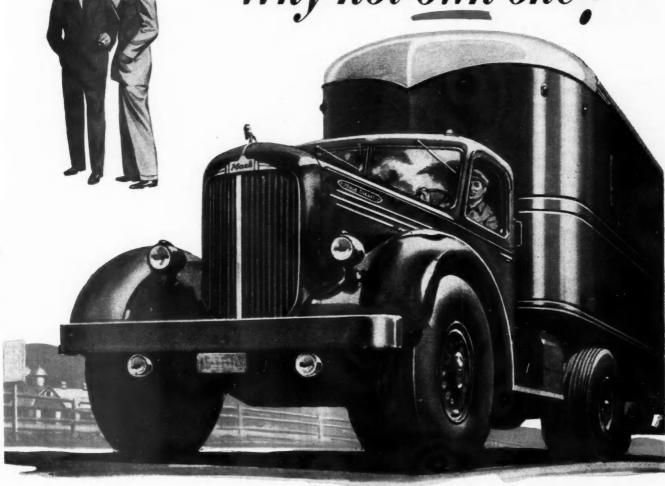
Chassis weights including cab, have been increased on the following models.

Line	***************************************	New
Number	Model	Weight
4	E-21A	5315
5	E-21B	5440
6	E-21C	5575
7	E-21L	5690
52	306	15520
53	316	16480

53 316 16480
The wheelbase for model E-21L is decreased to 185 in., with a new C-A dimension of 120% in. Torque for models E-216 and E-226 is 224 and 264 lb frespectively. Model E-236 has a compression ratio of 5.85, torque 338 lb ft, and maximum brake horsepower of 145 at 2600 rpm. Model 306 has a minimum wheelbase of 186 and a maximum of 248 with a C-A dimension of 108½ in.

See February issue, page 107 for specifications of other models

If you are PAYING for a Mack Why not own one?



Be Profit-Wise

Modernize with



Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and distributors in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.

When you use a truck that doesn't measure up to its job, you pay for Mack performance... but you don't get it.

You make a slightly higher initial investment when you buy a Mack, but you save a lot more by eliminating expensive repair bills... loss of earning power... costly road failures... untimely truck replacement.

Today your dollar buys more in a Mack truck than ever before. Measured in terms of enduring reliability; sustained earning power; longer mileage life; lower ton-mile cost—every Mack is a real bargain in profitable hauling.

See your nearest Mack branch or distributor. You'll find that, all things considered, the question is—can you afford not to own a Mack.

New Truck Registrations by Makes by States*

STATE		Auto- car	Brock- way	Chev- rolet	Dia- mond T	Divco	Dodge	Fed- eral	Ford	FWD	GMC	Inter- na- tional	Ken- worth	Mack	Pon- tiac	Reo	Ster- ling	Stude- baker	White	Willys	All Othera	Total
labame	Dec.			646	3		223		499		162	110		17	3	4		193 1202	15 113	22 657	37	1.80
rizona	12 Mos. Dec.	1		8874 127	21	17	2571 56	11	4409 189	*****	2092 47	1513	*****	109	9	38		38	1	20		5.74
rkansas	12 Mos. Dec.	1		1902 394	14	19	666 57	4	1483 276	2	484 46	312 20	6	9	1	28	2	526 28	17	225 14	43	83
	12 Mos.	2		9002 1682	47	12	2130 439	4 3	5226 1099	1 5	1894 310	1376	7	22 25	2 5	90	7	1304	34 36	805 117	30 43	21,90
alifornia	Dec. 12 Mos.	12 96	19	20333	21 254	421	6777	35	11140	48	5322	3809	126	204	24	203	69	3931	423	1428 26	374	55,03
olorado	Dec. 12 Mos.	1		317 4823	89	13	1471	18	2262	2	63 1233	66 1086	2	8	1	31		55 857	50	610	14	12,5
onnecticut	Dec. 12 Mos.	10 57	31	124 2197	3 73	71	69 926	7 35	110 1420	5	44 514	75 860	* 5 * * 6 *	18	7	35	2	31 407	46	28 341	24	7,2
elaware	Dec.	1		48			20		87		5	18		9	14	7		14 126	17	55	10	2.8
istrict of Col	Dec.	9	9	961 144	16	7	308 25	3	821 54	*****	199	300		1		6	*****	5	2	6	1	2
orida	12 Mos. Dec.	28	6	974 702	32 17	59	460 275	22	600 691		217 126	285 149		42 66	12	23	5	136	37 24	71 187	12 11	2,9
	12 Mos.	4		7128	132	60	2580	15	4236		1393	1441		258	9	88		1205 75	136 24	1029	55	19,7
eorgia	Dec. 12 Mos.	3	6	641 10252	103	18	138 3045	19	623 6750		2004	2206		161	39	121		1573	172	843	22	27,3
laho	Dec. 12 Mos.	1		148	91	2	58 884	7	111	10	71 970	39 821	2 46	18		39		48 728	20	30 606	27	8,0
linois	Dec.	7	.1	1876	52	23	689	3	1144	2	253 3264	712 6180		18 227	15 36	14 271	1 3	328 2817	587	107 1184	15	5,3
ndiana	12 Mos. Dec.	73	11 2	19537 671	515	257	6301 252	45	9626 580	18	114	250	*****	7	5	11		131	38	37	9	2,1:
rwa.	12 Mos. Dec.	12	13	8423 766	112	133	3144	25	5454 636	4	2097 100	3309 276	1	117	18	131		2013 104	324 16	660 38	72	2,2
	12 Mos.	9		9699	166	44	3022	13	5387	13	1608 102	3245 114	1	84	9	83		1577 55	95	699 27	69	25,8 1,2
алеав	Dec. 12 Mos.		1	466 8986	94	24	112 2294	25	365 4366	1	1820	2458	1	10	23	69		1348	78	582 69	54	22,2
entucky	Dec. 12 Mos.	5	1	493 7885	88	40	158 2159	17	488 4497	1	175 1928	129 1907		50	10	53		972	111	1351	41	21,1
ouisiana	Dec.	1		474	5		106	1	351	2	97	56 1417		59	3	29		54 1187	84	24 574	54	18.6
Aaine	12 Mos. Dec.	3		6798 193	106	16	1914	6	4766 69		1660	22		5	2	3		. 7	6	14	14	6.0
Maryland	12 Mos. Dec.	9	15	2114 243	9 2	8	639 109	6	1144 148		724 43	646 54		75 5	13	49	1	311	46	209		6
	12 Mos.	39	65	3445	43	54	1488 95	37	2083 161		710 36	1023		127	7 2	68	1	381	108	238 39	37	9,9
Aassachusetts	Doc. 12 Mos.	127	10 106	514 3901	16 85	142	1890	14	2637	7	803	1333		239	9	115	40	697	239	286 22	28 10	12,6
lichigan	Dec. 12 Mos.	25	1 4	1126 13790	13	31 273	379	60 60	9398	2	264 2712	221 2275		26 174	10	20 112		116	234	586	113	35,2
Ainnesota	Dec.			619	1 86	1 55	172	23	493 4631	6	105 1469	183 2769	1 6	136	1 9	3 51		136	78	19 379	60	1.7
Aississippi	12 Mos. Dec.	48	*****	8475 533	1	- 55	2373 164	1	423		115	72			4	1		84	32	34 589	26 34	18,6
Aissouri -	12 Mos. Dec.	1		7515 1059	44	2	2018 308	4	3971 619		2025 230	1304 228		36	7	30 5		1061	7	46	1	2,7
Montana	12 Mos. Dec.	8	1	13381 226	71	111	3826 57	1	6082 195	1	2827 61	2636 50	1	54	6	111		1663	211	877 28	47	31,9
	12 Mos.			3013	79	12	923	18	1901	8	987	1077	18	6	1	63		717	23	844 36	19	9,7
Nebraska	Dec. 12 Mos.		2	299 6088	247	3	72 1486	13	278 3267	9	45 1332	108 2182	9	20	3	30		1200	72	1012	49	17.0
Nevada	Dec.			36 530	2		12 206	2	59 411		10 202	134		1 3	1	5	1	179		104	5	1,7
New Hampshiro	12 Mos. Dec.	1		31		i	19		47		11	21		3		1		. 5	13	23 145	5	3,1
New Jersey	12 Mos. Dec.	9 22	41	989 591	15 22	18 52	413 352	2 9	753 866	1	258 214	309 210		63 114	39	17	1	127 88	70	115	6	2,8
New Mexico	12 Mos.		219	7007	180	212		88	5117 182	15	2149 69	2209 32	1	460	131	103	7	865	401	828 19	106	23,1
	Dec. 12 Mes.	2		3197	33	3	892	2	1140	1	835	471		22	44	15	4	577	38 81	187 109	31 21	7,4
New York	Dec. 12 Mos.	59 401	46 665	13125	607	36 396	538 7586	18	864 8699	53	207 4024	346 5212		95 1346	11 56	37 456	32	2037	1030	1542	353	47.7
North Carolina	Dec.	7	1	1552 10850	11	43	358	26 43	923 6541	3	174	143 1876		45 377	17	111	5	203 1500	223	56 802	19	3,5 27,5
North Dakota	12 Mos. Dec.			134	2	1	36	2	70		. 24	50	*****					28 651		324	10	9.6
Ohio	12 Mos.	. 6	2	3512 1124		15	763 513	24	2109 891	2	654 226	1542 346		67	21	10		192	65	90	6	3,6
Oklahoma	12 Mos		12	13964	220			137	8391 879	9		4112 215		285	103	195		2067	746 16	1131	118	39,8
_	Dec. 12 Mos	. 7		8930	30	41	2924	3	5073	6	1873	2281	1	28	19	75		1354	132	865 35	35 13	23,6
Oregon	Doc. 12 Mos	22122		293 4318		32	1667	18	173 2553	2 6	1297		60		4	34	6		99	665	130	12,8
Pennsylvania	Dec.	19	52	1121	26	1	604	13 93	1023 9627	8	. 265	349		76 820	20	33	25	180		80 1241	14 222	3,9
Rhode Island	Doc.	4	1	63		. 1	32		55		. 10	29		. 9	1			. 8	4	117	1 18	3.
South Carolina.	12 Mos Dec.	62	1	984		84	464		756 341		191	42		82	2	24		58	8	21	1	1
South Dakota	12 Mos	. 13	1	4723	30	15			2837 105	3		771		118	5	20		589		334 21	20	12,
	Dec. 12 Mos			2777	94		799	7	1425	9	494	1367	8	7	2	17		531	8	493 22	31	8.0
Tennesses	Dec. 12 Mos	1 7		10606		29	124		469 5016	1		2271		155	11	134	1		253	947	68	28,
Texas	Dec.	4		2156	18		621	1	1825		7488	408			5	129		422	35		467	71,
Utah	Doc.			. 167	7 2		31	2	83		. 26	13	1		. 4			1 39	1 1	10	2	5.
Vermont	D c.	k		1899			23		1047	4	. 14	1 19		. 1	1	32	1100	10)	. 8	1	
Virginia	12 Mos			95	7 14		407	10	631	1		485		12	2 4	26		293				3,
	Dec. 12 Mos			841	9 71	4	7 2610	23	4886		1648	1708		147	10	70		103	1 165	632	64	21.
Washington	Dec. 12 Mos	s. 10)	40					329 3029		130	1 1492	61	57	14	55			2 102	581	79	14
West Virginia	Dec.			22	6	1	. 83	2	142		68	55			3 1	35		40				10.
Wisconsin	Dec.			352	5 1	3 1	1 232	2	529	8	111	7 22	5	1	10	14		12	8 20	50	8	22
Wyoming	12 Mor Dec.	9. 1	3	844			61		4471		154					. 1		3 136	5	. 35		
,	12 Mo	B.	1	159			ACC							3	B	. 18		29		378	9	4.
Total December 1949 Total December 1948					7 36		8 8908 1 8419									271 620		4 405 4 428	5 820 7 664	2082 4868		78 70

^{*} Data from R. L. Polk & Co.



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A selected list of the latest literature catalogs, pamphlets, charts—chosen to help fleetmen improve operation and maintenance.

L12. Lubrication Data

Mechanics and owners interested in lubrication practices and the development of lubricants should read this publication carefully. In 12 full pages of pictures and easily-read text the author covers the developments in truck and bus lubrication with special smphasis on the years after 1935. In this respect he discusses heavy-duty oils and requirements, super heavy-duty, intermediate duty oils showing qualifications and applications.

Other studies include the lubrication of hydraulic transmissions, conventional transmissions and rear axles. Photographs show typical failures in pinion teeth and ring gears resulting from lubricant failures.

This study is indeed interesting and educational. Write L12 on the free postcard to secure a copy.

L13. Cleaning Manual

A new edition of the Truck and Bus Cleaning Manual includes the latest methods and materials for providing fast, thorough and economical cleaning with special emphasis on how to save time and extra maintenance.

Outline of subjects includes tips on engine and chassis cleaning, small parts cleaning, cleaning cooling systems and bodies, paint stripping for repainting. In addition valuable information is outlined for preventing and controlling sludge formation.

Write L13 on the postcard and let this booklet help you with cleaning

L14. Color Shading Chart

A novel color shading chart that tells at a glance how automotive paint appliers can exactly match faded auto colors is offered to the fleet field. Specific color matching information on this large, 14-in. x 20-in., easy-to-read wall chart will prove especially valuable to operators of garages, paint shops and truck and fleet paint departments who are constantly faced with the problem of quickly and exactly matching colors that have faded from age or weatherwear. Formulas for securing shading variations of many different automotive colors are offered.

The chart may be secured by writing L14 on the free postcard.

L15. Bearing Service

This 20-page booklet titled "Installation, Maintenance, Removal of Anti-Friction Bearings"—is probably the most comprehensive on the subject of bearing care to date. It has been compiled and printed by the Anti-Friction Bearing Distributors Association as a service to maintenance men.

to mishandling and improper maintenance practices, this booklet is a handy guide to correct shop procedure that can increase bearing efficiency and eliminate many bearing failures. It is profusely illustrated throughout, gives detailed information on the subjects of bearing types, cleaning bearings, removing bearings, installation, lubrication, and tips on how to handle bearings for storage.

Copies may be obtained free of charge by writing L15 on the postcard.

L16. Welding Wall Chart

A mine of valuable welding information is to be found on a new two-color giant wall chart measuring nearly 2 ft. by 3 ft. and listing over one hundred EutecRods and EutecTrodes with their standard sizes. For each rod such technical data is given as: type of joint for which suitable, metal on which used, bonding temperature, tensile strength, Brinell hardness, degree of color match, electrical conductivity, resistance to corrosion, flame adjustment, etc.

There is also a section on the 33 most important Eutectic Alloys, with a brief discussion of their properties. A brand new useful feature is a check list of close to 300 production and maintenance applications, with the rod or rods recommended for each case - a list which every welder will value.

Write L16 on the postcard for a free

L17. Torque Converters

With the present trend toward use of torque converters on cars and buses, fleet operators will want to brush up on the operation and design of this versatile unit. Here is a booklet that will provide a good bit of background information on the General Motors torque converter.

This 24 - page, illustrated booklet shows what the torque converter is, how it functions, where and how it has been used and detailed information on specific applications.

Printed in multi-colors and complete with diagrams and drawings that will make the data readable and easilymastered, this publication should be in the hands of every operator who contemplates use of such equipment. Write Since many bearing failures are due L17 on the free postcard for a copy.

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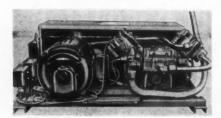
THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto

New Product Descriptions

Continued from Page 84

P86. Defrost Unit

For temperature applications of 32 deg F and below, these new defrost units can be used with any evaporator. Based on the principle of pressure-temperature relationship, the unit defrosts



the evaporator automatically, whenever the efficiency drops to a predetermined point. After complete defrost, return to freezing is instantaneous as well as automatic.

A low and high pressure control, both reverse acting, are utilized to start the defrost cycle and revert to cooling. These controls energize a solenoid operated 4-way reversing valve which completely reverses the flow of refrigerant. Lehigh Mfg. Co., Lancaster, Pa.

P87. Brake Energizer

Made of case hardened steel, cadmium plated, this self-energizing brake energizer features a high-carbon tempered steel clock spring which provides noiseless action, and automatically centers the brake shoes after pedal action. eliminating possibility of drag.

Outstanding feature is the ease of installation. Mechanic simply replaces anchor pin with energizer, using same lock pin, and then adjusts brakes in usual manner. Energizers can be installed during re-line job. Energizers fit all Chevrolet passenger cars, 1936 through 1950, and all ½ ton trucks. South Gate Brake Specialties Co., South Gate, Cal.

P88. Endless Hack-Saw

The ordinary hack-saw can only cut up to the hack-saw frame, but the Endless Hack-Saw can cut through unlimited distance and thickness in limited spaces. Every return stroke is automatic. An enclosed spring returns the blade after each stroke. Blade breakages are reduced and there are no holding pins to become bent or broken. The blade is supported in the front casing by three hardened steel balls. Any standard ten or twelve inch hack-saw blade will fit this tool. Ziskind Co., Inc., N. Y. C.

P89. Rustproof Spark-Plug

This plug differs radically from the conventional type of plug and offers a baffled firing chamber with 5 outlets, which provides a jet-firing action.

It is made of Monel, with a "D" Nickel adjustable center electrode and a "shatterproof" ceramic insulator, which is made of aluminum oxide. The baffle design construction raises the head compression by displacing part of the combustion area approximately 2 cubic centimeters. On the upward stroke of the piston, the gas is forced through the 5 orifices of the baffle and the gas is compressed inside, exploding instantly in a jet-firing action covering the entire valve area. It forces out any oil or foreign matter which has entered in the pre-explosion cycle and thus prevents fouling.

Since Monel and nickel are used for all parts except the ignition wire nut, which is made of brass, the spark-plug is rustproof. The plug can be easily disassembled for ready adjustment or for cleaning purposes. The spark gap is set at .030 at the factory and can be readily adjusted to engine manufacturers' specifications by means of the micrometer screw of the center electrode. Thomas Automotive Products Mfg. Co., Rockford, Ill.

P90. Soldering Unit

Operating on the conduction principle, the WASSCO GLO-MELT has a 24 heat selector to handle both light



and heavy work. Soldering is done with a light handpiece weighing only five oz which is handled as a pencil.

Upon immediate contact with work the tip of the copper jacketed carbon "pencil" glows red and the flux-core solder flows when touched to the pieces being joined. Power is used only when contact is maintained. No dressing or tinning is required. Wasserleing Mfg. Co., Inc., St. Petersburg, Fla.

P91. Steam Cleaner

Cleaning grease, grime and dirt from machinery and equipment is accomplished 48 to 60 times faster than by hand methods with this pressure steam cleaner. Its 300 gallons per hour capacity will operate from one to four cleaning guns. Full operating pressure is reached within two minutes from a cold start.

It can be changed in less than two



min, for use as a heat generator, with heat output equivalent to a 25 hp boiler. Change is completed by simply loosening two bolts and reversing crank arm. Super-Duty Hypressure Jenny is made in trailer mounted, portable and stationary models. Hypressure Jenny Div., Homestead Valve Mfg. Co., Coraopolis, Pa.

P92. V-A-R Tester

The improved volt-amp-resistance tester for 6, 12, and 24-volt internal combustion engine ignition systems uses only one pair of leads for all voltage and current regulators. The tester is operated as an independent unit and is also included with the King System Deluxe Engine Tester. It features only three controls instead of the conventional four to six control setup. It has meter scales to accommodate any generator up to 200 amps capacity, and also enables voltage and current regulator testing to be accomplished without breaking the regulator seal.

A resistance load substituted for the battery eliminates variables in the charging circuit and permits accurate regulator testing regardless of battery condition. Internal load resistors combined with only two selector switches simplify testing procedures and speed up training of shop personnel. Electric Heat Control Co., Cleveland, Ohio.

P93. Drop Axle Assembly

Developed especially for heavy portable equipment applications in which the safety factor is of primary importance, the new drop axles lower the center of gravity of a portable unit to minimize top-heavy characteristics,

(TURN TO PAGE 88, PLEASE)

BROCKWAY USES SHULER AXLES



THERE ARE NO BETTER AXLES, AT ANY PRICE!

SHULER AXLE COMPANY, Inc.
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Since 1915, Manufacturers of: One-Piece Tubular and Square Trailer Axles, Front Axles, Machinery Trailer Axles, Machinery Front Axles, Front-Steer Trailing Axles, Heavy-Duty Brakes (Mechanical, Vacuum and Air), House Trailer Axles, Miscellaneous Forgings for Heavy-Duty Trucks and Trailers.

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New Product Descriptions

Continued from Page 86

which in turn provides increased protection against over-turning and subsequent injury to personnel and equip-

Drop axles are recommended for all types of portable units subjected to travel over rough terrain and all types of road conditions. Assemblies incorporate the same component parts as straight axle kits, including standard springs and wheel hubs. The drop is forged to eliminate metal stress and to provide the new units with the same load carrying capacities as comparable size straight axles. Standard drop is 4 inches. United Mfg. Co., Bedford,

P94. Low Hydrogen **Electrodes**

There are 14 different types in this new series of electrodes, covering all welding applications where low hydro-

gen electrodes are desirable. Each has been thoroughly tested. The coatings were developed to produce deposits low in hydrogen, thereby eliminating the under bead cracking.

These electrodes produce excellent welds on problem steels and other alloy steels, including castings. They have a moderate penetrating arc with an easy to remove slag. Harnischfeger Corp., Welding Div., Milwaukee, Wis.

Late Product Flashes

A new, non-toxic and non-corrosive liquid called Safety-Sol, cleans sludge and gums from compressed air systems. Pressure tank and liquid is available from the Preventative Maintenance Co., Bridgeport, Conn.

Battery charger and power inverter, 6 volt, d.c. to 115 volt, a.c., is now offered in a single unit by the Electro-Verter Corp., Pittsburgh, Pa.

For use under extremely cold temperatures, the new 21 plate Rebat 2H Cold Starting battery is offered by Reading Batteries, Inc., Reading, Pa.

Especially built for small operations, a new Teletalk master intercommunication unit and speaker has been announced by the Webster Electric Co., Racine, Wis.

Two solid die-cast handles, one for use as an inside handle, have been introduced by the Cleveland Hardware and Forging Co., Cleveland, Ohio.

Just placed on the market, a new pre-cemented line of National "Bond-Tite" brake lining sets, by the National Brake Block Corp., N. Y. C.

FUSED FABRIC brake lining is now made available for Ford and Chevrolet trucks by the Russell Mfg. Co., Middletown, Conn.

Two special sockets for heater switches and dash controls on Chrysler line cars and International trucks, have been developed by the Snap-On Tools Corp., Kenosha, Wis.

A line of self-tapping, oversized drain plugs is now offered by the Universal Lubricating Systems, Inc., Oakmont,

A new type of cylinder head stud is now being marketed by the Blaisdell Mfg. Co., Long Beach, Cal., which eliminates the necessity of drilling the head and using oversize nuts wherever it becomes necessary to enlarge a threaded hole in a block.

Eleven neg'ator clamps in a new kit, No. NC-11, has been introduced recently by the Hunter Spring Co., Lansdale, Pa. (TURN TO PAGE 90, PLEASE)



NEW, LOW PRICE/ ON FOCO FLAR FF3

I HIS reflector-type flare is rapidly becoming one of Anthes most popular flares. It is easy to set up under all weather and road conditions. Reflectors are made of Du Pont Lucite. Candle power readings are greatly in excess of requirements. Now Anthes quality at this new low price makes the FOCO FLAR your best buy. Comes as a single unit (FF1) or in sets of 3 (FF3) with mounting bracket. See your jobber for prompt local service or write to us for catalog of the complete Anthes Safety Line and the name of our jobber in your city.

ANTHES FORCE OILER CO., FORT MADISON, IOWA





... and proud to serve the safest drivers on the road!



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WITH ALL THESE EXTRA COST-SAVING ADVANTAGES

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- 2 Power-lift cab for complete accessibility and lower maintenance cost.
- 3 New safety features.



BOWMAN DAIRY has a new salesman on wheels . . . this great new White 3000 . . . making more calls and doing more business in the Chicago area every day.

Where traffic conditions are severe, the functional design of this handsome White pays extra dividends in time saved and costs reduced.

This new White 3000 is miles ahead for specialized delivery service because it sets a new standard in truck

efficiency. Its functional design...its new weight distribution principle...its revolutionary approach to reducing truck maintenance coststhese are all exclusive advantages that make the new White 3000 a profitable investment that pays dividends for years.

Your White Representative will be glad to show you how the sensational new White 3000 can be profitably used in your business.



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THE WHITE MOTOR COMPANY OF CANADA LIMITED . FACTORY AT MONTREAL

FOR MORE THAN 50 YEARS THE GREATEST NAME IN TRUCKS

Tips its cab to service

New Products

Continued from Page 88

P95. Load Binder

Made of alloy castings with drop forged hooks, the Tension-Pull Load Binder is guaranteed against breakage or spreading of the clevis. Further guarantee against overstraining, is its revolutionary continuous load take-up feature. Each operation of the handle takes up slack and tightens the load

until the desired tension is reached. Through compound leverage action, one man exerts up to 4500 pounds pull on the chain, without the use of an extension pipe. Four sizes ranging from 6000 lb. capacity to 30,000 lb. are available. Canton Cast Products Co., Canton, Ohio.

P96. Starting Capsule

For cold weather starting, "Vitamin capsules," with the aid of an applicator, enables an engine start in less than 10 sec in a temperature as low as 25 deg

F below zero. Basically an ethyl-ether compound, its use is simplified and made safe by packaging in red gelatin capsules.

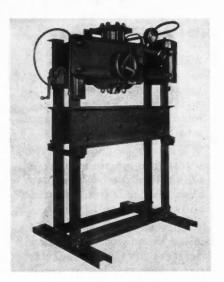
A capsule is slipped into the reservoir, and a plunger pressed which punctures it and releases the fluid. The fluid is then forced through an injection nozzle into the intake manifold. Because of its wide explosibility range and lower ignition temperature, the fluid ignites immediately when subjected to the engine spark, warms the combustion chamber, preparing it for the intake of the normal fuel-air mixture. The California Oil Co., N. Y. C.

P97. Weight Gage

To solve the problem of determining the proper type wheel balance weight to be applied to truck rims, the various contours of the gage are fitted against the flange of the rim, and the type that fit exactly is selected. The pocket size gage is made of cold rolled steel with each contour labelled with a number corresponding to a type number in the Loney series of L & H brand truck weights. Harley C. Loney Co., Detroit, Mich.

P98. 150-Ton Press

The Elect-Draulic 150-ton press is fast with capacity for a variety of shop work including rivetting. A finger-tip control runs the ram down to the work, builds pressure rapidly to pre-selected



tonnage. The ram kicks off at predetermined setting. Hydraulic operation in both directions gives powerful ram retraction. Ram speed is 12 to 13 in. per min, with a travel of 12 in. The pump is a radial fixed displacement type. Motor is 10 hp. Lempco Products, Inc., Bedford, Ohio.

END

THE SAFEST DIRECTION SIGNALS



The safety pilot light is an exclusive feature of the Tung-Sol. Flasher and an important one wherever flashing signals are employed. In automobile applications it does more than tell that the switch is "off" or "on". It indicates when flashing that the signal system is functioning properly. Should the pilot light not respond when the switch is on, it is a warning of a failure in the circuit.

Tung-Sol Flashers have ten years of automotive use to recommend them. They start instantly, have crisp action, consume little current and are not affected by ambient temperatures. A Tung-Sol Flasher normally lasts for the life of the car without attention. There is a type for every application. Write for brochure.

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ARE OUR BEST BUY"

Mr. Garner's letter is typical of what hundreds of fleet maintenance men say about Wagner Air Brakes—"As part of our large fleet operation we require 25 trucks to service the greater St. Louis trading area. In an urban and inter-urban operation of this kind, stop-and-go driving necessitates many air brake applications requiring plenty of air. We've installed Wagner Air Brakes on the vehicles used in this area.

"We have found that the Wagner Rotary Air Compressor supplies this much needed air in ample quantity and requires practically no maintenance. That is one

of the features we particularly like about the Wagner system — once installed, it can almost be forgotten.

"As far as we at Western Trucking are concerned — for the job they have to do—for freedom from maintenance — for all-round dependability — Wagner Air Brakes are our best buy for our operation in the St. Louis trading area."

You, too, can cut your air brake maintenance cost with Wagner Air Brakes. Install them on your trucks, tractors, trailers and buses. When ordering new equipment specify WAGNER. Write today for copy of Bulletin KU-50.



B. E. Garner
Maintenance Superintendent
Western Trucking Co., Inc.
St. Louis, Mo.

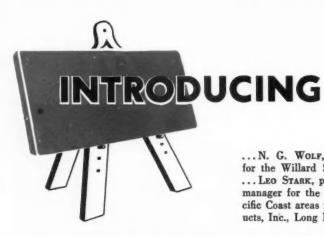


6470 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.

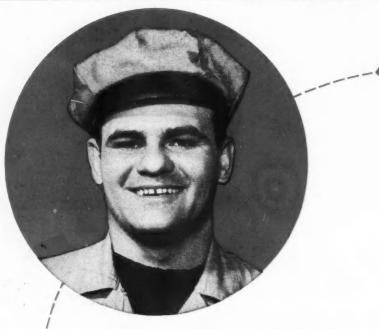
LOCKHEED HYDRAULIC BRAKE PARTS and FLUID ... NOROL ... COMAX BRAKE LINING ... AIR BRAKES... TACHOGRAPHS ... ELECTRIC MOTORS ... TRANSFORMERS ... INDUSTRIAL BRAKES



X80-



... N. G. Wolf, Dallas district manager for the Willard Storage Battery Co... Leo Stark, promoted to regional sales manager for the Rocky Mountain and Pacific Coast areas for Standard Motor Products, Inc., Long Island City, N. Y.



"Know Their Stuff"

We use Thermoid Heavy Duty Brake Blocks, because the Thermoid people really know their stuff. They're recognized experts in the field of brake maintenance—and whether it's Brake Parts, Brake Fluid or Heavy Duty Brake Blocks, we've always found Thermoid brake products completely dependable in every way. We're bugs on economy, too. That's another reason why we use Thermoid Heavy Duty Brake Blocks. They're engineered for long, money-saving service.

Thermoid Company · Trenton, New Jersey



Ihermoid

Brake Linings • Fan Belts • Radiator Hose
• Hydraulic Brake Parts and Fluid •
Car Mats • Clutch Facings • Thermoid
Precision Process Equipment

...D. A. Gell, appointed Kansas City regional manager for the Dodge Div. of the Chrysler Corp.

... EDWARD H. RICE, Omaha regional manager, Dodge Div., Chrysler Corp.

... ROBERT C. STOCKTON, appointed general traffic manager of Stewart-Warner Corp.



...J. V. DOLL, vice president of fleet sales and special assistant to the executive vice president, Mack · International Motor Truck Corp.

...J. ABBOTT MILLER, promoted to assistant General Sales manager in charge of of the National Accounts Div., American Hydraulics, Inc.



... W. J. RAY, appointed manager of the national sales division for the Texas Co.

...T. C. JACKSON, installed as assistant district manager of the International Harvester's Minneapolis motor truck district sales office.



...W. L. Bowron, formerly sales manager of the Dallas district, now appointed California district sales manager for the Willard Storage Battery Co.

...J. B. "Tex" Evans, sales representatives for the Weaver Mfg. Co., Springfield, Ill.





D E Kuntz

J. H. Shafer

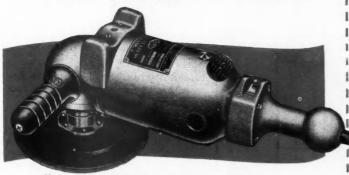
...J. H. SHAFER, appointed district manager at Minneapolis for the Motor Truck Div. of International Harvester is shown on right ...D. F. Kuntz, shown on left, promoted to Eastern Regional manager.

(TURN TO PAGEE 94, PLEASE)



9" HIGH SPEED HEAVY DUTY

Permanently lubricated. Handles all 9"-7"-5" Abrasives. Patented spindle lock for changing discs. Comes complete—ready to go to work. No load speed 5000 R.P.M.—115 Volt, 11 Amperes. Ball-Bearing equipped. No. 1250



7" HIGH SPEED HEAVY DUTY

Handles all 7" and 5" Abrasives. Comes complete ready for use. No load speed 4250 R.P.M.—115 Volt, 9 Amperes. Ball-Bearing equipped. No. 1267

take high surfacing costs

They're designed to meet your particular requirements. Engineered and built to give long, satisfactory service—thousands upon thousands of SIOUX users prove it. Get SIOUX and increase your profits and customer satisfaction. All units Universal Motor equipped.



7" SPECIAL ELECTRIC SANDER

Handles all 7" and 5" Abrasives. Complete for immediate use. No load speed 3500 R.P.M.—115 Volt, 5 Amperes. Also available in 32 Volt. No. 1265

510UX "RESIN BOND" Abrasive Discs

A Type for Every Purpose

INDUSTRIAL—for heavy duty work.

REGULAR—for body work on light gauge Metal.

OPEN COAT—for paint removal—fenders, door panels, woodworking. Non-loading, Non-clogging.



Sold only thru
Authorized SIOUX Distributors

STANDARD THE

ALBERTSON & CO., INC.



WORLD OVER

SIGHT CITY TOWA II S. A.

Introducing

Continued from Page 92

... M. E. HICKMAN, named manager of a newly formed southwest district with headquarters in Kansas City; V. A. SMITH, manager of Pacific Coast district will now include the Rocky Mountain states under his supervision, and JAMES E. BALLARD, transferred to the southwest district for Bendix Products Div., Bendix Aviation Corp.

... GORDON GROTH, elected president and general manager of Electra Mfg. Co.

... F. H. Boor, who has joined the engineering staff of the Wisconsin Axle Div. of The Timken-Detroit Axle Co.

... CHARLES TAYLOR, as sales representative in Missouri, Nebraska, and Kansas for C. E. Niehoff & Co.



... EDWARD M. BIN-DER, branch manager of International Harvester's new branch at Castle Shannon, Pa. ...C. L. STOCKER, sales and engineering representative in the San Francisco area; A. L. PATNIK, welding engineer in the Seattle district, for the Lincoln Electric Co.

. . . H. R. SALISBURY appointed president of Air Reduction Sales Co.

... Frank J. Nucent, appointed sales manager of Heating Equipment, Borg-Warner Corp.

. . . ROBERT MONTGOMERY, appointed general parts manager of Willys-Overland Motors.



... W. HERVERT HULTGREN, appointed assistant chief engineer of Purolator Products, Inc. lic

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... A. B. Concrove, assistant district manager of International Harvester motor truck district sales office at Omaha, Neb.



CONREY, appointed manager of domestic distributor sales and service division of Continental Motors Corp., with headquarters in Muskegon, Mich.

... HOWARD VOCEL, chief engineer, named director of engineering for Champion Spark Plug Co.

... ROY PATTON, named assistant to director of engineering of the Champion Spark Plug Co.



...R. L. (Bob)
Thomas, Atlanta
district manager for
Grey-Rock Div.,
Raybestos - Manhattan, Inc.

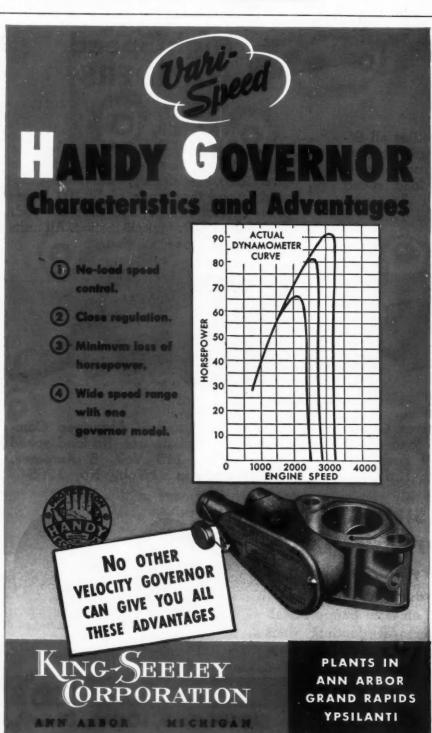
... Rocer Howley, promoted to truck and bus tire representative for The General Tire & Rubber Co.'s Akron district.

... PAUL BECKER, appointed manager of new wire and cable plant of The Electric Auto-Lite Co., in Hazleton, Pa.



... GEORGE Mc-MANIS, appointed sales manager for the Automotive Div. of the Warner Electric Brake Mfg. Co.

... New managers at service branches of Independent Pneumatic Tool Co., Aurora, Ill: EUGENE C. O'CONNELL, new manager at San Francisco; CLARENCE H. GABRIEL, new manager at Denver.



Rules of the Road Work Two Ways

Continued from Page 72

lic rather than enforcement officers. Every job has its rough spots, and one of the road driver's pet peeves is tavern and road house areas on Saturday night, when anything can happen with the half blind, the drunks, and the morons behind the wheels of automobiles on the highway. Another aggravating condition in mountainous sections of the country is created during the ski season. Resort areas are crowded with cars, many of which are thoughtlessly parked with a part of the car extending onto the traveled portion of the highway. It's not only the driving handicap that is set-up for the truck driver, it is the accident potential that exists. Should an accident occur, the truck driver usually gets blamed. There are surprisingly few accidents involving trucks in these areas because truck drivers know the conditions on their regular routes, and have trained themselves to be especially cautious at these locations.

Aid to Motorists May Backfire

THERE is an ironic situation which sometimes develops when a truck driver stops to give assistance at the scene of an accident. There have been incidents when such drivers have been falsely accused of contributing to, or being involved in, the accident. Such accusations usually come from persons who are especially "claim minded," when they see a truck from a big company, and who know a shyster lawyer that can swing the case. The driver should get statements from witnesses testifying that he was not involved in the accident. If a highway patrolman is called to the scene, he can, by carefully studying the accident situation, get the true facts and help offset false

One of the major criticisms against trucks on the highway comes from motorists who are forced to follow a truck up a hill. A gesture which has been recognized widely is the truck driver waving to motorists behind him, signaling them to pass when the road is clear. It is true that this is looked upon by the public as an act of courtesy on the part of truck drivers.

However, there is a serious aspect to this practice. The truck driver who gives such a signal is taking a chance because he does not know the limitations of power in that automobile behind him, nor does he know the ability of its driver. The truck driver also has to judge the speed and distance of an approaching car, and this ability varies

considerably. There have been some cases where motorists have started to overtake a truck, following such a signal, only to find they didn't have the power or the speed necessary to get around in time. When such situations result in accidents, the truck driver is liable and a suit may be filed against his company. Moreover, such signaling

is not performed in a uniform manner by all truck drivers. There have been times when motorists have taken this to be a signal to stay back.

The same situation is true concerning signaling by lights at night. Light signals can be very confusing. There is no code that is uniform throughout the country. If you were to ask a hundred motorists the meaning of two flashes from trailer lights, you would get many different answers. Furthermore, there may be a short circuit causing a flicker

(TURN TO PAGE 98, PLEASE)



SPOT IT—under any axle, from any angle



SWING IT—Bring dollies into position for removing wheels without lifting



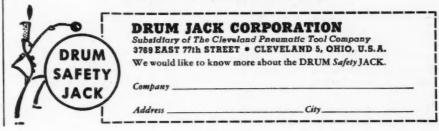
LEVEL IT—Pull wheels easily without damage to bearings or oil seals



ONE MAN does the work of two with this new, improved heavy-duty jack. No wheels to lift—no crawling under trucks. Works anywhere—under any wheel—on trucks or tractor-trailers.

Use the NEW Drum Safety Jack for dual wheels, single wheels or as a floor jack.

Send for descriptive folder today!



Rules of the Road

Continued from Page 97

in the lights, which could be misinterpreted by a following motorist as a signal to pass. We have instructed our drivers not to give such signals, but, instead, to get over as far to the right as they can. Then, at the first opportunity, pull off the road, if there are many cars following them. There are undoubtedly some drivers who condemn the truckers for not giving them the signals. Police and other agencies can be of great assistance in their public educational programs by explaining the danger in situations such as this.

Experienced Patrolmen Helpful

A PERSON who often does understand what the truck driver is up against is the experienced state highway patrolman. He and the qualified truck driver have a common understanding of highway problems, for they live on the highways day and night in all kinds of weather and road conditions, and encounter all types of drivers from all over the country. Once I heard a highway patrol captain state before a large public audience that, when driving on the highway in his own car regardless of weather or road conditions, he would rather meet a big truck from a wellorganized firm than any other kind of motor vehicle on the road.

I have met and talked with patrolmen who were formerly over-the-road truck drivers and they really understand the position of the driver who hauls for an inter-city common carrier. They know the role he plays and appreciate some of the forces he is up against. In their respective positions, the patrolman and the truck driver can be of considerable assistance to one another, and have been thousands of times throughout the country. Many letters are received from patrolmen expressing appreciation for assistance given by our drivers at the scene of an accident.

Highway patrolmen can use reliable truck drivers to good advantage by securing their assistance at the scene of an accident, as well as to warn other motorists of existing hazardous situations. The heavy blizzards of last winter in the western states brought to the front many incidents of heroic efforts on the part of over-the-road truck drivers who rescued many stranded motorists and were responsible, in some cases, for the saving of lives. They were responsible, also, for removing vehicles creating road blocks. There was considerable acknowledgment from state highway enforcement

officials highly praising the heroic work of the truck drivers.

A State patrolman can take into account the truck driver's problems and still perform the functions of his duty. We never want any enforcement officer to overlook any violations committed by our drivers or any truck drivers; we need that protection and so does the public.

Some Cops Lack Knowledge

ON THE other hand, all state police are not cognizant of the truck driver's problems in complying with certain provisions of the traffic code. One state in particular is strict regarding noise. The noise of a diesel engine often is regarded as a menace. There are certain times when drivers can control motor noise and they are so instructed. If a driver needlessly and ruthlessly "winds it up" in every gear, in towns and cities, he should be repri-

manded. Certainly, the police are within their prerogative if a noise ticket is issued. Most enforcement officers use discretion in warning drivers of excessive noise.

However, there have been occasions when drivers have been issued noise citations when climbing a grade, a condition which obviously the driver is unable to control. About a year ago, a driver operating a 200 diesel was stopped by a state policeman for having a noisy muffler. In the course of the conversation, the patrolman pointed to another truck as it passed by remarking that no such noise came from that truck. It was a ton-and-a-half Chevrolet. Such lack of knowledge is exceedingly detrimental to the reputation of an enforcement officer and cause for loss of respect.

P.I.E. has spent thousands of dollars over a period of three years in an attempt to reduce muffler noise. As

Use B ex. of MIRACLE POWER for every six quents of ell in your craniccase and 8 ex. to 20 gallons of gaselins.

How

Miracle Power Works

MIRACLE POWER forms a breath-like graphoid film on all vital engine parts, reducing harmful friction and wear and helping motor oil form a better seal between piston rings and cylinder walls and between valves and guides. And MIRACLE POWER does this, not by thinning out your oil—not by solvents—not by "purging" your engine—but by better, safer lubrication.

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PARTS CORPORATION

Miracle Power Division

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I am a fleet operator and accept your clenge to try MIRACLE POWER for myself at expense. Enclosed is 25c to cover packing postage. Send me two 8-oz. containers and compression test card immediately.

Nums.

Before using the MIRACLE POWER take compression readings of each cylinder and note them on the compression test card which we'll send you. Then drive approximately 500 miles and re-check the compression. You'll see for yourself the actual proof of the remarkable increase in compression which MIRACLE POWER will make in your engine.

Miracle Power Division

you

two 8-oz. containers of

and

one

for

your gasoline tank

MIRACLE POWER

88

a result, the Nelson Muffler has been adopted, with some alterations. Noise has been diminished very materially to the satisfaction of all.

Authorities Sometimes at Fault

AT VARIOUS locations along the route the truck must be weighed. The location of the scales in some places creates a traffic hazard. One such scale that I know of, is situated at the approach of a blind curve, where eastbound drivers have to cross the highway and pull off the left side of the road. Should any type of collision result, the truck driver would be liable. State authorities would do well to give more thought in planning the location of scales.

g

to

k-

lf

Truck routes through some towns and cities necessitate right angle turns. On streets that are wide enough, and where there are no parked cars to crowd him, he can keep the entire unit on the right side of the center line throughout the turn. In some instances, where cars are parked almost up to the corner, negotiating such a turn with a 50-ft unit without getting the trailer wheels over the center line is an impossibility. When a driver gets a ticket for this type of violation it really takes the heart out of him.

A great deal of benefit can result through the cooperation of patrolmen, I.C.C. inspectors, city and state police, truck drivers, and fleet operators. After all, the common objective is to make the highway safer, reduce accidents, save lives, and cut down the needless waste of money caused by the lack of sensible driving.

BUT, everyone should not point his finger at the truck driver. The Rules of the Road should work two ways.

END

(Please resume your reading on P. 74)



GMC Provides Diesel Training Course

With the popular trend toward dieselization of heavy-duty equipment on both the West Coast and in Eastern states, truck fleet operators will be challenged with new maintenance problems. Mechanics proficient with gasoline engines will need brief training on the fundamentals of diesel operation, maintenance data for repiring injectors, fuel pumps and distributing mechanisms and other aspects differing somewhat from gasoline power plants.

For sound, up-to-date information on the GM 2-cycle engine, a two-week training course available to dealers and operators alike, has been developed jointly by GMC Truck and Coach Div., Detroit Diesel Engine Div., and General Motors Institute.

Held in two sections of the country, Flint, Mich., and Oakland, Cal., the program is intended for qualified gasoline engine mechanics desiring to learn more about the series 71 GM diesel, for mechanics with limited diesel experience, for qualified diesel mechanics desiring to brush up on the engine, representatives of oil companies and others interested in this engine.

During the two weeks complete coverage of construction, operation, maintenance and overhaul is provided. Approximately 40 per cent of the time is spent in classroom instruction, while 60 per cent is devoted to laboratory or shop work, when students disassemble and repair the 71 engine under the supervision of competent instructors.

All equipment, tools and instruction material is furnished, and students receive personal copies of laboratory job sheets, maintenance manuals and service for their own use later

Lecture subjects include the following:

Fundamentals of Internal Combustion Engines

General Construction of Series 71 Diesel Engines

The Lubricating System

The Fuel System

The Air Intake and Exhaust System

The Cooling System

The Governor

The Gear Train and Engine Balance Fundamentals of Engine Tune-Up and

Diagnosis
Maintenance Requirements and Engine
Operation

For complete information and matriculation details the reader should write to the Service Dept., GMC Truck &

Coach Division, Pontiac, Mich.

Two-Way Radio Boosts Business

Continued from Page 67

with the dispatcher. When a shipper phones in that he has a trailer loaded, the dispatcher immediately locates the nearest available tractor and sends the driver to go and pick it up. After this, he calls the harbor foreman and reports that the load is on its way to him, so that he can plan for it. And whenever the harbor foreman has a trailer loaded or unloaded, he gives the information to the dispatcher.

The radio serves to virtually eliminate dead mileage and is a tremendous factor in reducing operating costs. Instead of coming into the dispatcher's office or parking his truck to phone in, the driver merely picks up his telephone in the cab and calls in his position and asks for orders.

Every dispatcher is familiar with the situation where a call comes in to hold up a pick-up or delivery just five minutes after a truck has left, or where an order comes in to pick up an order when he knows that there is a truck in that neighborhood if only he had some way to notify the driver.

All this is avoided with two-way radio. Even the trucks that aren't equipped with radios are indirectly controlled by it. The dispatcher usually can figure the approximate location of the wanted truck, ask a radio-equipped truck traveling the same road to watch for it and wave it down.

The radios have proved themselves a big factor in improving efficiency and reducing costs, but they have also tremendously improved the quality of the service the fleet operator provides to his customers. A shipper may phone in to say that he has men idle because there is no empty trailer at his dock, or he may want to know when the next trailer will arrive at his dock, so that he can have a crew ready to unload it. In either case, he will have action in a matter of minutes.

Many manufacturers work closely on inventories, and they may have a production line down because of a shortage of materials that is at the harbor. Knowing just what particular items are needed, the dispatcher will contact the harbor foreman and request that he immediately load the needed material and call him when it is loaded. When the foreman's call comes in, the dispatcher sends a driver to pick it up and calls back to the manufacturer to let him know the material is on its way to him. Service like this means real savings to the firm's customers.

A specific example of how the radio serves one shipper is illustrated in the handling of butane gas shipments to the Philippine Islands. Harbor regulations specify that butane gas must not be loaded aboard ship more than four hours before its departure time. When the dispatcher is notified that a certain ship slated to carry the butane gas is almost ready to leave, he immediately orders a truck to pick up the gas and deliver it to the harbor.

The radio system also has proved valuable in case of break downs and accidents. In one case, one of the trucks was involved in an accident with a passenger car. Because the driver was able to call in immediately, the company had the police, an ambulance, the insurance company and its own road supervisor on the way to the scene in a matter of minutes after the collision. The police and the ambulance were on the spot before anybody involved in the accident could even have called them.

(Please resume your reading on P. 68)



The Triborough Bridge and
Tunnel Authority
Chose

THE

BIEDERMAN

TRUCK

because of its

- Sturdy Construction
- Dependable Power
- Capacity for Big Loads
- Advanced Design
- Accessibility of All Parts

FLEET OPERATORS: Let us send you complete specifications of the Biederman National Standard Model. Compare them with any other truck on the market and you will then understand why the Triborough Bridge and Tunnel Authority chose Biederman trucks for their reliability.

For complete information write, wire or phone.

BIEDERMAN MOTORS CORPORATION

CINCINNATI, OHIO

Conference Corner—Oil Reclaiming

Continued from Page 6

cially in view of the fact that the alterations occurring during usage and reclaiming change the original "base oil" character, and in a variant manner.

It is very important to realize that the desirable characteristics or properties of any oil, but especially of the heavyduty type, are not all susceptible to arbitrary measurement. As far as the user is concerned, its performance should be of first interest. Physical characteristics, such as pour point, flash point, viscosity and others, are properties to which numerical values are readily assigned. However, as such, these values unfortunately have very little significance with respect to the performance of the oil in the engine. It is performance which counts, and it is not easily evaluated nor can a numerical value of any significance be assigned to it. Oil performance can be evaluated only by elaborate engine testing under controlled laboratory conditions and in actual field service. It is pertinent to inquire-is all this practical for the user?

In addition to the actual reclaiming processes, there is a very important item that cannot be overlooked since it pertains to both costs and the effectiveness of reclamation. This is the matter of segregation of drained used engine oil from other petroleum products and fluids common to fleet operation. Great care must be exercised that brake fluids, hydraulic fluids, greases, gear lubricants and anti-freeze solutions are not dumped into the same container with any engine oil to be reclaimed. This is extremely important and requires consant surveillance on the part of management. In many cases, it has been found well-nigh impossible to accomplish effective segregation.

While it is practically impossible to reclaim today's heavy-duty engine oils to their original condition, it should not be persumed that partial reclaiming is never justified. There are occasions when reclaiming provides a ready source of good lubricant for non-critical applications. Whether the degree of reclaiming required is practical and justified depends on the factors involved in each individual case. All factors must be taken into account: type and quality of the oil used, the method of reclaiming considered and its limitations, the cost of new oil versus that of reclaimed oil, and the effect on the overall economics of the operation with new oil versus reclaimed oil.

No hard and fast rule can be applied to this problem. Obviously, the basic reason for reclaiming is a reduction in operating expense. The most readily apparent saving is, of course, that between the cost of new oil and of reclaimed oil over a fixed period. The cost of the latter must include the cost of equipment, segregation, personnel and other associated expenses such as interest and depreciation.

Actually, the true reduction in expense, if any, is the difference in the cost of the entire fleet operation when using new oil as against the cost when using reclaimed oil. This is the only figure of any value, for while a saving might be shown in bare oil costs, the use of the reclaimed lubricant might necessitate more frequent oil drains, might mean increased oil consumption, and higher maintenance and repair expense. To a fleet operator who is purchasing engine oil on the basis of first cost only, the considerations discussed may be of little importance. But, for the purchaser who selects engine oil with both first cost, maintenance and

(TURN TO PAGE 104, PLEASE)



CHASSIS AND MOTOR CLEANING

Use it for

Oakite Steam-Detergent cleaning combines heat, force and heavy-duty Oakite detergency to remove grease, oil, muck from chassis and motors in a fraction of the time required by manual methods.

PAINT-STRIPPING

Use it for

No need to waste hours manually scraping or burning paint from truck bodies. Switch to to the rapid Oakite Steam Gun and Oakite Stripper method! Paint shrivels up in short time, is easily rinsed away. Surfaces are left in grand condition to receive new paint.

DEGREASING PARTS

Use it for

Oakite Steam-Detergent Cleaning quickly removes oils and grease accumulations from parts. Speeds inspection and repair.

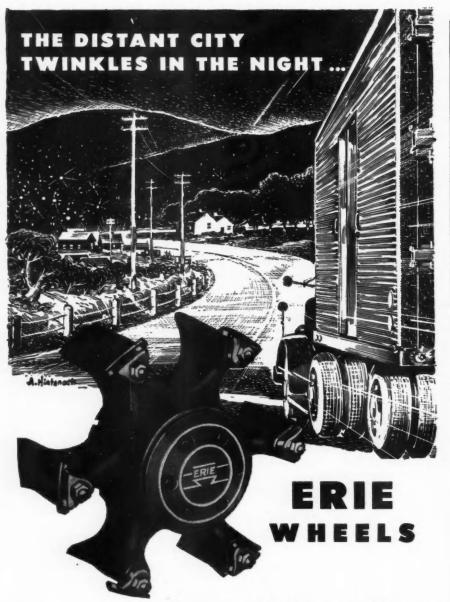
CLEANING FLOORS, PITS, LIFTS

Use it for

Oakite Steam-Detergent Cleaning of floors, pits and lift areas gives service shops a neat, orderly appearance... eliminates fire hazard and danger of falls due to accumulations of oil and grease.

Ask your nearby Oakite Technical Service Representative for complete details. Or send for FREE booklet, "Modern Oakite Cleaning Methods". Oakite Products, Inc., 52G Thames St., New York 6, N. Y.





Speeding smoothly into the dawn over broad-laned concrete highways, rolling relentlessly day and night resisting the shocks of "roading"—the heat of sustained high speeds and quick stops . . . How shall we combat these hazards to the Safe-Conduct of Cargo? Erie Wheels answer the query; Erie Wheels are Safe because their turbine-like spoke design draws great drafts of cool air through them to drive destructive heat from tires and brake drums . . . They are strong because they are cast of tough, enduring Malleable Iron
. . . They last and last . . . because they are the product of
pioneers in Wheel Design and Manufacture . . . Erie Wheels . . . Choose them and safeguard your convoys.



ERIE MALLEABLE IRON COMPANY

Automotive Wheel Division ERIE . PA.



Conference Corner

Continued from Page 103

proper performance in mind, these considerations must be taken into account.

Today's high-quality, heavy-duty engine oils, containing additives to impart improved performance, have conclusively resulted in better economies in fleet operation. Existing reclaiming equipment cannot reclaim such oils to their original condition, and their performance levels are unquestionably depreciated below their original value as the result of reclaiming. The gains made through the use of today's oil could be upset by the use of a reclaimed product which cannot achieve the same initial standards. Reclaiming should be approached with caution, in full knowledge of all the expense and hazards involved.

Reclaiming of engine oils is by no means a new development, and many excellent papers and articles have been presented on this subject. The fact remains, however, that reclaiming continues to be an occasional topic in fleet-owners' considerations involving the economics of fleet operation and the cost of engine oil, matters always vitally important to owners. Unfortunately, much of the literature available on reclaiming refers to a type of engine oil not widely used today in automotive fleets-the straight mineral oil generally classed as "regular" type engine oil. During the past decade, the petroleum industry has successfully developed greatly improved engine oils and, as a result, today's high quality engine oils for fleet service are quite different from the high-quality oils of the late 1930's. The difference is due largely to the practice of incorporating into choice base oils at the refinery special materials that markedly improve an oil's performance characteristics by imparting desirable qualities not present in the crude oil fractions regardless of how skillfully "refined." It is this very thing that so greatly influences oil reclamation practices and the results obtained. It seems desirable, therefore, to review the subject of reclaiming as it may apply under today's conditions.

Reclaiming Defined

The term "reclaiming" is broad in scope. It can mean to recover, that is, to collect or to salvage; or to restore, that is, to return as far as possible to an original condition. Obviously, the first alternative is not involved in this discussion. The other alternative is most generally interpreted to mean sufficient purification to make a used oil suitable for re-use in the equipment from which it was drained. The crux

(TURN TO PAGE 106, PLEASE)





"More Satisfied Customers because of finer quality work since our mechanics brought their equipment up-to-date with Snap-ons", says J. D. Johnson, Service Manager of Frank Woods, Inc., Charlotte.



"With my new Roll-away cabinet and new Snap-on tool set, I can do a job 40% faster," says mechanic Charles Stewart of Frank Woods, Inc., Charlotte, N.C.

J. D. Johnson, President of the Service Managers Association, knows that good tools as well as good equipment are important in selling an increased volume of service. An expert mechanic himself, he knows that a complete kit of Snap-on tools contributes to speed, good workmanship, and bigger pay envelopes.

Charles Stewart is an expert mechanic. He says this, "As long as I stay in the mechanical end of the automobile business, I will never be without my Snap-on tool set." For many years better mechanics like Charlie have discovered that Snap-on gives them safe, speedy wrenches and tools . . . the right one for every job.

'Snap-on'' is the trademark of the Snap-on Tools Corp.

Look for the Snap-on man. He calls at your shop with the tools you need.



SNAP-ON TOOLS CORPORATION

8026-C 28th Avenue, Kenosha, Wisconsin

for 30 years, Snap-on's nation-wide Tool Service has proved to be

"The Time-Saving Way to buy Time-Saving Toolof"

Conference Corner

Continued from Page 104

of the whole matter lies right here. Many assume that the reclaiming equipment currently available completely restores oil to its original condition, but this is an unjustified simplification. It is possible, through the use of correct procedures, which incidentally are not generally available, to remove virtually all contaminants from an oil, regardless of their source; but if that oil is an engine oil containing special addi-

tive materials, it can only be brought to its original condition by incorporating the proper addition agents in the proper relative amounts, which requires great experience, skill and time. In short, under such conditions, the reclaimer who would be successful must in reality operate a miniature refining, blending and compounding plant. The reasons for this become apparent as the story develops.

Contaminants To Be Removed

Engine oil is subject to severe contamination, both from internal and from external causes. As a result, both chemical and physical changes may occur, despite any initial high qualities possessed by the lubricant.

In an engine, temperatures in the order of 650 deg F are reached at some points, at which cracking of the oila destruction of the oil molecule-may occur. At this temperature, as well as at lower temperatures, oxidation occurs. This is a chemical reaction between the oil and the air circulating through the engine. It is activated by the catalytic action of the metals of which the engine is constructed as well as by lead compounds, if gasoline containing lead tetraethyl is the fuel. These various reactions alter the characteristics of the oil and result in the formation of both soluble and insoluble con-

The soluble materials are frequently acidic in nature, and are always undesirable for, if permitted to become excessive, they may corrode silver, copper-lead, cadmium or other hardalloy bearings. *Also among the soluble contaminants are resinous, gummy and asphaltic constituents which tend to stick piston rings. They also increase oil viscosity. Any insoluble materials formed usually result in contamination, both of the oil and of engine parts, on which they collect as lacquer or one or more forms of carbonaceous sludges. The present high-quality, heavy-duty oils employed in fleet units are, of course, remarkably resistant to oxidation and the resulting formation of deterioration products of all kinds. It is evident, however, that any reclaiming process which could not or would not remove them completely if they should form can hardly be an efficient process.

The external contaminants are many—water and other combustion residues, the so-called by-products of combustion; unburned fuel; moisture condensed from the air; atmospheric dirt; and metal particles from engine wear as well as occasional bits of core sand.

(TURN TO PAGE 108, PLEASE)

For a Better Switch...

Better Switch to ARROW



Check the features of the new Arrow Directional Signal Switch against those of any switch on the market, then switch to Arrow for safe, sure protection . . . for a better switch at a lower price.

POSITIVE PROOF INDICATION. One feature alone makes it worth the low cost. That's a tell-tale jewel light that tells you whether your signal lights are working—not just the switch. If one or more of your lights are out, or there is a break in the lamp circuit, the jewel light will indicate that the system is not functioning perfectly.

FINGER-TIP CONTROL. Adjustable handle can be moved in and out to provide finger-tip control regardless of the size of the steering wheel.

EASE OF INSTALLATION. Separate mounting bracket fits any size steering column merely by tightening a screw—a matter of seconds.

BUILT-IN PROTECTION. Built-in line fuse prevents short circuit caused by improper wiring from affecting other lights in your vehicle. **DEPENDABILITY.** Tested for over 175,000 cycles.

ATTRACTIVE, MODERN DESIGN. Compact, good-looking.

The new Arrow switch is available for 6- or 12-volt systems, with standard or with stop-light-proof wiring-harness, with or without a flasher mounted in the switch case, and for a 2-light or 4-light hook-up. It can be used in combination with any Arrow Signal Lights or with any system now in use.

See the amazing new Arrow switch at your dealer's today.

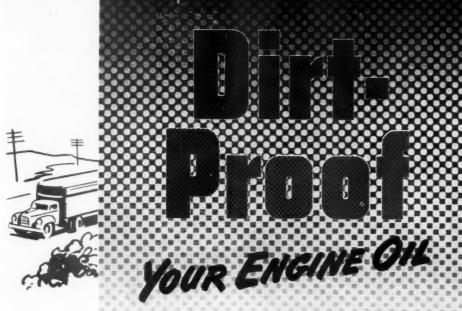


Route Delivery Body



Model 4910 York-Hoover body, shown on a Ford chassis. It features sectionalized construction in which each side panel is made and assembled in two sections and the roof, floor and rear end are separate units. Damaged sections can be removed and replaced easily with a minimum loss of time

ARROW SAFETY DEVICE COMPANY . MOUNT HOLLY, NEW JERSEY



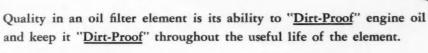


KINDS OF DIRT



This pile of dirt (11/4 pounds) was taken from an AC Element after 5000 miles of normal city driving. Analysis disclosed 12 kinds of dirt, metal bits, asphaltene, grit, etc.





That's why AC Oil Filter Elements are preferred by many fleet owners

with outstanding maintenance records.

Every AC Element is engineered for the job it has to do-and is built to exacting specifications, to remove harmful sludge and even the tiniest particles of dirt.

There is a type of AC Element designed for your oil filter. It will "Dirt-Proof" your engine oil-preserve power-keep rings and valves free-protect moving parts from dirt and abrasives.











preferred on millions of vehicles

DIVISION . GENERAL MOTORS

Conference Corner

Continued from Page 106

Most are insoluble in the oil: the combustion soot, lead compounds derived from tetraethyl lead if gasoline is the fuel, dirt that enters with the air required for combustion and ventilation, water, core sand and metal particles. Other oil-soluble products may be formed by the fine particles resulting from wear as they in time may form metallic soaps. Dilution of the lubricant by the fuel always occurs and in

some cases can become severe. In the case of gasoline engines, which are operating properly, the percentage of dilution is usually stabilized at a relatively low figure that only slightly decreases oil viscosity. However, in the case of diesel engines, the fuel is not anywhere near as votatile as gasoline and, therefore, not as readily vaporized out of the oil even when normal running temperatures are established. As a result, the lubricating oil can in some cases become highly diluted and show a considerable reduction in viscosity.

In many respects, these external con-

taminants are potentially more harmful to oil life and engine condition than those due to oil deterioration directly. They should, therefore, be removed in any reclaiming process for which a complete job of purification is claimed.

Reclaiming Methods

There are numerous types and makes of equipment manufactured for the purpose of reclaiming used engine oils. It is not thought necessary to describe them in detail as far as design is concerned. Each design, however, embraces one or more of the following principles:

A. Mechanical separation of insoluble materials, by screening, filtration,

settling or centrifuging;

B. Adsorption of soluble contaminants;

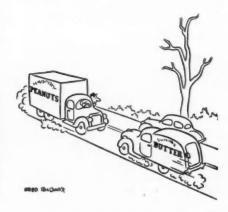
C. Chemical removal of soluble contaminants through addition of an agent which will effect their precipitation or

D. Distillation, to remove both soluble and insoluble contaminants such as gasoline, diesel fuel oil and water.

Some so-called reclaiming equipment consists primarily of a filtering or other separating element which has no adsorption properties. Others consist of a filtering element which, in addition to filtering the insolubles, tends to absorb soluble impurities. They may or may not involve heating of the used oil under vacuum to drive off the volatile contaminants. There are designs which combine many of these basic methods, embodying mixing of the oil with activated clay such as Fuller's earth or some other adsorptive material, heating the mixture and agitating it while under vacuum, recovering the condensate from the vapors and passing the oil-clay mixture through several filter presses to remove the clay. As the equipment becomes more complex, it usually becomes more costly. On the other hand, it must be complex to give results approaching the definition of reclaiming established earlier.



(Please resume your reading on P. 10)







 ${f H}$ YDRAULIC shock absorber and suspension mechanism of the Bostrom seat soak up jolts and jars. Steel frame and bonded rubber pad last the life of the truck. Mechanism moves in rubber - requires no oiling. Fore and aft adjuster accomodates all drivers. Seat coverings are replaced in 10 minutes - eliminating upholstery jobs.

Costs a little more

at the start...

costs a lot less in the long run.

For truck part numbers consult your truck dealer or write:

BOSTROM MFG. CO.

Milwaukee 4, Wisconsin

DWARDS



LIGHTER WEIGHT BIGGER PAYLOADS

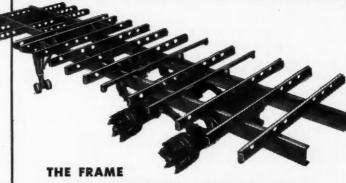
GREATER STRENGTH

The new Edwards Aluminum Trailer gives you an amazing amount of extra payload capacity and the strength to carry it. More payload means bigger profits for you per ton mile. Greater strength means lower operating and maintenance costs, plus longer life.

Edwards is the only trailer to cut useless deadweight without sacrificing strength by using aluminum in combination with light weight, hi-tensile steel. It is the only trailer with a double-strength frame.

Edwards takes an all-aluminum body with the same kind of frame that would be used on a frameless chassis. It mounts this body on chassis that has a frame. The double-frame gives double strength.

The Edwards Aluminum Trailer, single or tandem axle, will start paying you profits from the moment you put it to work.



is the structural foundation of the whole trailer. Edwards uses the same frame construction for both single and tandem axle chassis. Frame and frame cross members are hi-tensile pressed steel. Thus weight is cut to the minimum consistent with sound engineering practice and a stronger, more rugged body results.

AND BODY COMPANY AILER

EDWARDS TRAILER AND BODY CO.

Address

DEALERS: A LIMITED NUMBER OF EDWARDS FRANCHISES ARE AVAILABLE IN RESTRICTED TERRITORIES

New York to New Orleans

Continued from Page 71

while limited in the newer shops to the items that can be positively justified in cash savings, was still on the increase, in most instances. The lathe, for instance, once found only in the biggest shops, is now almost as universal as the air compressor. It indicates that the fleetman no longer thinks twice before undertaking the turning of a piece of common stock to the design he

needs, rather than paying the price for a special part.

But it should also be noted that, even among the newer shops, it is no longer thought that they need be glamourous architectually. Johnson, in Charlotte, and Super Service Motor Freight, in Winchester, Va., are doing very nicely, thank you, in shops built entirely of quonset huts—well heated, well ven-

tilated and well equipped.

Some of the larger operators, particularly among the bus fleets where high mileages often still exceed the truck lines, were of their own admission a bit over equipped. Nonetheless, they were using the expensive equipment, born of war necessity and not nearly written-off in cost, to still further reduce their maintenance expenses.

We did notice one very interesting trend with regard to inspection procedures. It has to do with the elimination, in many fleets, of a special lane—variously called a daily check lane, a fast line, a lubrication line, or what have you. Associated Transport, for instance, used to especially emphasize this procedure in many of its shops. But their new one in Baltimore does not have it.

The reason for this trend is quite simple. In most fleet shops there is some sort of basic inspection after every major trip-usually in the vicinity of 1000 miles. Then there are a progressive number of other inspections, such as lubrication, oil change, and on up into the regular preventive maintenance checks. More frequently than not, two or more of these inspections fall due at the same time, and still more frequently, when the unit is in for a very simple check such as lubrication, some other fault requiring maintenance attention is detected. When additional work is needed, and there is a long line up of vehicles waiting to come over the pit or lane on a definite time schedule, the waiting units are tied up, or there must be an excessive amount of "jockeying." To avoid either of these contingencies a good many fleets are resorting to the "one-stop" system, where almost any inspection, from a trip check to a (TURN TO PAGE 112, PLEASE)

Safe Driving Award



Award being presented by S. E. Armstrong, district manager of the Liberty Mutual Insurance Co., to Howard Sober, left, president of auto transport firm which reduced its accident frequency by 51% and severity by 81% over a period of three years. Award was presented at the winter meeting of the National Automobile Transporters Association in Detroit



Rotating Wheels
Cylinder Heads
Tapping
Spring Work
Oil Pans
Screw Driving
Door Hinges
Driving Studs
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Extracting Broken

A "handful of hands" and all the ability they provide are yours with ONE amazing Ingersoll-Rand Impactool—the sensation of the electric tool field.

YOU CANNOT STALL AND BURN OUT THE MOTOR Should you stall the spindle completely the motor continues to run.

YOU GET NO KICK, NO TWIST.... It's easy to use even on the toughest jobs.

YOU CAN SAVE UP TO 90% OF NUT RUNNING TIME ALONE... The Impactool easily pays for itself in 30 days or less.

Seeing is Believing

Ingersoll-Rand

Ask your jobber for a demonstration of this amazing, time-saving, labor-aiding Impactool.



Often, when you bid on a hauling contract, a few dollars one way or another makes the difference between getting or losing a profitable piece of business. That's why it pays to be smart about your brakes. When you install Bendix-Westinghouse Air Brakes, you automatically reduce your overhead by savings in maintenance and parts replacement costs, sav-

ings in decreased down-time, savings from faster, safer trip speeds—and thus increase your margin of profit. But, why not see your Bendix-Westinghouse Distributor. Let him show you how to cut costs and how to get soft, cushioned braking plus the world's safest brake. On any truck, old or new, it's wise to install Bendix-Westinghouse Air Brakes.

THE BEST BRAKE IS

THE BEST AIR BRAKE IS

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY ELYRIA, OHIO

New York to New Orleans

Continued from Page 110

major overhaul, or at least a major inspection, can be performed here.

Perhaps the most advanced example of this practice is in the Mason & Dixon shop at Kingsport, Tenn. It is fully described elsewhere in this issue.

Bus Shops

IT SHOULD be noted, however, that this trend away from special lanes for special procedures is not true

among the bus properties, where daily cleaning and inspection procedures, inside and out, are an absolute must. But here we found another trend, namely, the use of complete records, often by remote control through electronic intercommunication equipment, whereby the bus can be instantly shuttled from the original inspection lane to whatever department it then needs to go for further work. A notable example of this was at the Southern Coach Co. shop in Raleigh, where every vehicle in the fleet came over a single pit every day. Daily inspection,

lubrication and oil change can be performed on the spot, but from there it is directed to what ever section of the shop not only takes care of the particular work needed but also specializes on the particular make of bus.

Finally, while on the subject of bus shops, or any other automotive shops for that matter, no story would be complete without mention of the new trolley-bus shop at Atlanta operated by Georgia Power Co. Here neither the truck operator nor the bus operator will find the familiar engine rebuild section, the carburetor and fuel pump overhaul department and many other "must" departments, but he will find as an amazing array of pits and lifts and portable equipment for the dayto-day maintenance of chassis components, as he may ever hope to find. There is even a gymnasium for the use of drivers in off-peak hours, poweroperated doors, even to include the complicated mechanism necessary for the over-head wires, radiant under-floor and under-pit heating, and complete departmentalization of work sections, are other features of interest to all, regardless of the type of vehicle operated.

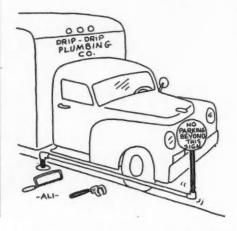
Recapping

RECAPPING provided some interesting notes. For years, Associated Transport has had its own plant at Charlotte. More recently, McLean has installed a very complete recapping shop at Winston-Salem. But it remained for Dixie Highway Express to come up with some very interesting figures on the cost and savings of a small plant with just one mold. We will have more about that one in a forthcoming issue.

But whether the fleets did their own work or sent it out, nearly all were using the recap tire; usually in all positions except the front wheels, although sometimes even there.

END

Please resume your reading on P. 72



Get
This
Straight!

Hose—made to original equipment specifications and proven to be better wherever the going's toughest. Because it resists deterioration due to heat, anti-freeze and chemicals, Thermoid Radiator Hose lasts far longer. Use it on all your equipment. Safeguard against restricted circulation caused by premature hose collapse. To reduce maintenance costs, specify Thermoid Radiator Hose when ordering from your regular supplier.



Ihermoid

Brake Linings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Clutch Facings • Car Mats • Thermoid Precision Process Equipment.

Thermoid Company • Trenton, N. J.



HALF a million dollars is all in a day's work to the crew of this car. They operate a Brink's Express armored car. Their job is to transport large sums of money. They are well protected against attack, by armor plate, by bullet-proof windows, and by strong locks and hinges.

Not least for their protection are the locks and hinges. These items are standard Hansen equipment. They were chosen because they are unsurpassed for strength and compactness.

Brink's selection of Hansen body hardware confirms the wisdom of multitudes of other Hansen customers. They know that the Hansen reputation for rugged, serviceable hardware has been earned from almost half a century of experience.

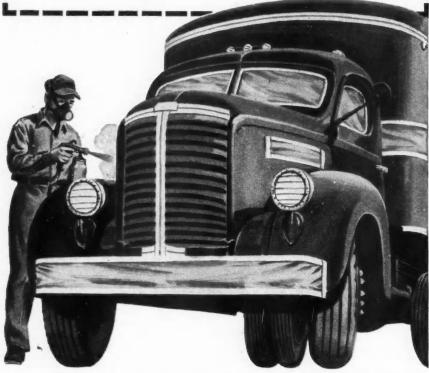
Choose Hansen body hardware for your own installations. A full line is available.

Write for information today.

A. L. HANSEN MFG. CO., 5047 Ravenswood Ave., CHICAGO 40, ILL.

PERMACEL TAPE SPEEDS

REPAINT JOBS...SAVES "OFF-THE-ROAD" TIME... PROTECTS YOUR PROFITS!



6 REASONS WHY Permacel-77 helps fleet owners SAVE MASKING TIME, CUT COSTS!

- 1. Comes off roll easier, quicker!
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- 5. Faultless, accurate



Permacel-77 "Stretch" makes curv 5. Strips off cleaner, buses, cars, trucks.

SEND FOR THIS FREE ILLUSTRATED BOOKLET! Twenty-five pages



of masking procedure, complete with description of Permacel's new Portable Masker. Write DEPT. 11M, today!



Permacel-77 strips off easily, quickly -leaves no residue on painted surfaces.

INDUSTRIAL TAPE CORPORATION · NEW BRUNSWICK, N. J.

Milwaukee

Continued from Page 64

air compressors don't have electric starters, and their operators often call the service men to get them started. Sometimes truck battery failures are due to starting the engine excessively on some jobs. Calls are sometimes caused by plugged gas lines and, occasionally, because someone has siphoned the gas at night. The four-wheel trailers, slated for retirement, cause many of the calls.

The four-wheel, solid-tired sidedump trailers are more difficult to maintain and lubricate than some equipment because they are scattered and used by everyone. The South shop maintains a lubrication truck, with a simple card system, to keep track of lubrication. This truck also has welding equipment, spare parts and the needed tools.

The city has enough automotive repair equipment to do such jobs as a complete engine overhaul but not enough for peak overhaul periods. When shops are busy, the excess motor overhauling is sent to outside repair organizations whose work is known to be dependable.

As a policy, we carry a spare engine for every 10 vehicles we have of a given make. Where we have only five vehicles of a kind, we carry spare generators, starters, carburetors, and so on. We do not carry engines for light cars, because of the ease with which they can be obtained.

Milwaukee pioneered in the use of special police speedometers. The regular ones are disconnected and left in, while the special one is mounted directly under the steering wheel. The special ones have jeweled bearings for accuracy, and a locking device so the policeman can hold it at the trailing speed. These police speedometers are checked monthly by an outside speedometer service.

The centralization of automotive equipment has enabled the city to get more use of the equipment it owns, and the preventive program has eliminated costly service breakdowns. Better maintenance achieved by specialization has encouraged better handling of equipment by personnel, and has given the citizens confidence in the way the city handles its automobiles and trucks.

Please resume your reading on P. 65

COMMERCIAL CAR JOURNAL, March, 1950

SOUEEZ Costs...

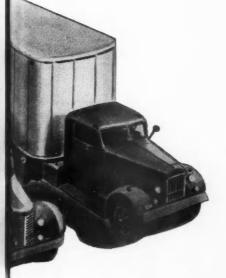
OF ALCOA ALUMINUM!

There's a bright spot in today's worrisome picture of rising costs and tightening restrictions. It's aluminum! The strong, light metal of transportation that helps you earn more, lets you spend less.

Here's how it works. With trailers of Alcoa Aluminum, your big saving in equipment weight goes straight into added payload capacity. Up goes the earning power of each unit! Running light, you save on fuel and tires. Maintenance costs less, too, because aluminum resists corrosion, presents no painting problems. Many staunchly-built aluminum rigs are rolling past the million-milepost...still going strong! When accidents happen, you can repair aluminum trailers right in your own shops...quickly, at low cost.

Ask your trailer builder for facts and figures to show how your investment in allaluminum equipment will pay off.

Did you get your FREE copy of this Valuable Book?



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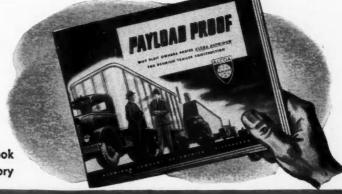
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Its 36 pages are filled with useful information, fully illustrated, to help you size up the advantages of Alcoa Aluminum for your equipment. Performance records, weights and dimensions of aluminum trailers, old and new. See what other fleets are doing. Send for your free copy of "PAYLOAD PROOF" today. ALUMINUM COMPANY OF AMERICA, 1860C Gulf Building, Pittsburgh 19, Penna.

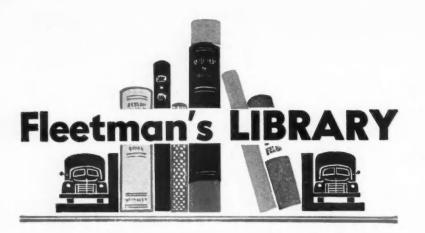
For local source of supply on ALCOA Products, look under ALUMINUM in your Classified Telephone Directory



ALCOAALUMINUM

ALCOA BLOOM BLOM BLOOM BLO

INGOT - SHEET & PLATE - SHAPES, ROLLED & EXTRUDED - WIRE - ROD - DAR - TUBING - PIPE - SAND, DIE & PERMANENT MOLD CASTINES - FORGINES - IMPACT EXTRUSIONS ELECTRICAL CONDUCTORS - SCREW MACHINE PRODUCTS - FABRICATED PRODUCTS - FASTENERS - FOIL - ALUMINUM PICMENTS - MACHESIUM PRODUCTS





THIRTY-TWO REASONS FOR OIL PUMPING, a 12-page booklet containing the many reasons for abnormal oil consumption, is well illustrated. It can be obtained by sending 10c. to Koppers Co., Inc., Baltimore, Md.

GM DIESEL QUIZ, a pamphlet provides simple, easy-to-understanl answers to 17 basic questions concerning the design and operation of Diesel engines. Write Detroit Diesel Engine Div., Detroit, Mich.

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SUN ELECTRIC CATALOG, 16 pages of color illustrations and descriptions of new and improved testers as well as the complete line of automotive test equipment, can be obtained on request from the Sun Electric Corp., Chicago, Ill.

FRONT END WHEEL SUSPENSION PARTS, a 16-page catalog contains exploded view drawings of front end assemblies and exact instructions explaining how to remove, replace and adjust suspension parts for all popular cars and light trucks. Write to Tuthill Spring Co., Chicago, Ill,

WELDING AND CUTTING FUMES AND HEALTH AND THE WELDER, a 13-page reprint answers common questions on the health hazards in welding and proposed minimum ventilation requirements necessary to make welding fumes harmless. Forward 25c. with request to Lincoln Electric Co., Cleveland, Ohio.

Brake Parts Catalog, includes onepoint reference to brake parts and lining covering passenger cars and trucks. It lists a complete stock of shoe exchange sets and CoMaX bonded lining segments available to those interested in bonding lining in their own shops. Write Wagner Electric Corp., St. Louis, Mo.

SAND BLAST HOSE, a catalog section listing specifications materials and methods used in construction of the hose used in butane and propane gas service, is available upon request to the B. F. Goodrich Co., Akron, Ohio.

PORTABLE WELDERS, a four-page illustrated folder shows and describes 15 features of gas engine driven arc welders. Write Hobart Bros. Co., Troy, Ohio.

THE DEPENDABLE DIESEL, a 24-page magazine tracing the use of diesel-powered equipment and featuring stories on specific operations, can be obtained by writing Cummins Engine Co., Inc., Columbus, Ind.

STANDARDS FOR BALL AND ROLLER BEARINGS is divided into 10 sections and contains all the standards that have been developed for ball bearings, thrust bearings, roller bearings and steel balls. Bound in a colored ring binder, it can be purchased for \$5 plus postage, from the Anti-Friction Bearing Manufacturers Assoc., Inc., N. Y. C.

ROTARY FILES, bulletin RF-15, describes "Fifty-to-one" carbide rotary files and ground cutter. Write R. C. Haskins Co., Chicago, Ill.

Maintaining the Mason and Dixon Lines

Continued from Page 53

Since we have no pits or lifts, regardless of the type of work to be done, the vehicle usually remains on the spot on which it was originally parked. Each vehicle can always leave the shop without necessitating the movement of any other vehicle. Our portable lubricating and tune-up testing equipment eliminates the need for spotting and scheduling vehicles for a particular spot in the shop. This prevents unnecessary and time-consuming delays.

The work flow to all departments is reasonably even and follows a natural and logical course. The service, inspection and tune-up department feeds work to all the departments except the parts department. When parts are removed from a vehicle and sent to a department for repair, duplicate parts are requisitioned. Thus the general scheme is to repair, rebuild and deliver to the parts department.

Operational mileage records are kept on each vehicle. At 1300 miles the unit is thoroughly lubricated. Oil and filters are changed at the 2000-mile mark. At 50,000 miles the fuel pump, air compressor and governors are changed, transmission and differential checked. Wheel bearings are checked every 20,000 miles. Carburetors are changed every 40,000 miles. Spark plugs are checked, and replaced where necessary, at 10,000 miles. Valves are ground or replaced and piston rings installed at 60,000 miles. All necessary replaced parts are requisitioned from the parts department on the approval of the foreman.

The better and more efficient this service department functions, the better for our schedules. Good service promotes good tempers in drivers and cuts down road calls. No matter how alert a service line is, it cannot do its best work by hit-or-miss methods. Some positive form of checking must be used.

Our accessory inspection report is the heart of our system, because it operates regardless of miles or drivers' reports. It is a two-way inspection report, and includes 48 items to be checked by the service crew besides mileage, tires, driver, and hook-up combination. The items are checked when an outfit leaves and rechecked upon its return. The driver signs out this ticket and the out check is signed by the inspector. This routine is repeated when the rig returns. The driver also has another black which must be filled out on his return. On the back of this report are provisions for recording any tire changes made on the trip. This record

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should correspond with any discrepances noted.

The driver's service blank and tire change report is a form on which the driver can make a report on some 75 different items by merely checking the item with a pencil. He also is provided with a space for making remarks and explanations on the operation of his rig. The service crew then can cor-

rect any troubles reported on the forms by the driver on the second or return inspection.

Engine Rebuilding

WHENEVER an engine is removed from the chassis for rebuilding, all accessories are sent to the salvage and disassembly department by means of a special 3-ft x 4-ft wooden container, carried by the fork-lift truck. The service crew installs a new or rebuilt engine with all accessories requisitioned from the parts department. In this de-

(TURN TO PAGE 122, PLEASE)



Maintaining

Continued from Page 121

partment, housed in a separate building, all parts and accessories as well as the block are checked for wear, condition and against their case histories. All parts which are worn beyond their wear limits are scrapped. The remaining parts and accessories are tagged with metal tags bearing job number and sent in the same wooden containers, carried by the fork-lift, to steam cleaning where they are thoroughly cleaned.

They are then returned to salvage for further inspection, after which they go to the various special departments for overhaul. All engine parts are sent to the engine rebuilding department, air compressor to the air brake department, and the generator and starter to the electrical department, etc.

Engine Rebuilding Procedures

OUR rebuilding program is obviously a full-scale operation that includes not only engines, but transmissions, differentials, fuel pumps, generators, air brake systems, bodies, fifth wheels

HOOF PRODUCTS CO.

6543 S. Laramie Ave., Chicago 38, III.

and all other parts. The most complicated rebuilding process in any shop naturally involves the rebuilding of engines.

The first step in that process in our shop is the work order, which is issued when the engine is removed from the chassis. Use of a work order in all departments makes it possible to keep an accurate record of the parts drawn from stock and where they are used. During the rebuilding of the engine, all the parts or accessories drawn from stock are charged against that engine on the numbered work order.

Decision to rebuild an engine usually is based on an average of 100,000 miles of use. If repairs of a major nature were called for between 75,000 and 100,000, it might be more economical to rebuild the engine than to make the indicated repair. On the other hand, an engine might be running well and doing a good job after it has passed the 100,000-mile mark. In such an instance, we would not tear down the engine until service checks and tune-ups reports, made before every trip, indicated its need.

However, most of our engines do need a rebuild at about 100,000 miles. Failure of an engine long before that mileage usually indicates the failure of parts, failure of workmanship, failure of adequate service or lack of ordinary care by the driver, and indicates the place where improvement can be made. On the other hand, an engine that runs past its 100,000-mile mark may reflect the long-wearing quality of certain parts, the high quality of workmanship, the good service it has received, and the good care given it by the driver.

The record of each engine is kept on a motor card which gives all the data concerning the engine, such general data as model and make, age, and number of miles, plus such specific information as sizes of sleeves, main bearings, connecting rod bearings, and pistons.

The crankshaft is measured. We never take off more than .030, and do that at two different times in about two cuts. If the crankshaft throws are worn and need regrinding, the measurements of the last regrinding operation are on the engine card. If it is already at or near the .030 mark, the shaft is discarded and a new one installed.

Cylinders are rebored until they reach about .060 oversize. Over .060 oversize, the block is discarded and a new one used. The engine rebuilding crew rebore the block, fit new pistons, bearings and do whatever is necessary to reassemble the engine, including the rebuilding of the water pump if necessary. This department does not, how-

(TURN TO PAGE 124, PLEASE)



A Patented, exclusive Hoof feature,

this Cantilever Spring means more

accurate speed control, simplified

construction and longer life!



COMMERCIAL CAR JOURNAL, March, 1950

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Maintaining

Continued from Page 122

ever, rebuild any of the accessories. When ready, it draws on the parts department for generator, spark plugs, carburetor, fuel pump, which are either new or units that have been rebuilt at some previous time in their respective departments.

When the engine was dismantled, the accessories removed from it went through the cleaning department and then to the department specializing in

its maintenance, which rebuilds and delivers it to the parts department.

Engine Testing

WHEN the rebuilt engine is reassembled, we give it a test and break-in run on our engine test stand. This stand was made in our shop from an old truck frame. It is equipped with a standard radiator and an outside exhaust stack. We installed a transmission in the frame and ran the drive shaft through to the outside, where it connects with a large two-bladed fan. This fan is located in a small concrete

5 ft x 5 ft block cubicle. Pulling this heavy fan in close quarters gives us the amount of load we want for testing the engine.

We have instruments hooked up to register oil and water temperatures, rpm, and oil pressure. We take careful note of the oil consumption and combustion analysis. All engines are operated on the stand for at least 24 hours in a certain routine. Preliminary testing, checking and examination for leaks takes the first two or three hours when the engine is operated at what is commonly called a fast idle (600-800 rpm). This run is without load.

The next step is to put the engine in second and run it in this gear with the fan as a load for four hours. It is then put in third and operated for four hours, then in the overdrive for six hours.

If no corrections are indicated at this point, the engine is shut down and thoroughly rechecked. We run a compression test, recheck timing and then give it a final short test run. If it passes these last checks, we then return the engine to stock or install it in a truck that might be waiting for it.

Whenever a new engine is installed in a tractor, a small sticker is pasted on the windshield to warn the driver of the new installation. We do not depend on this, however, to save our engines. Our objective is to give them enough run-in on the test stand so that in most all cases the driver can handle it as he would any other engine, and get the job done without babying it.

When the rebuilding crew has finished with an engine, they also correct the engine card information for correct bearing sizes and other important changed size data. This card then is filed until the next time it is necessary to refer to it for information on that particular engine.

Rebuilding Fifth Wheels

A NOTHER one of our continuous jobs is that of rebuilding fifth wheels. Our fifth wheels are made of steel plate, and we mount them on a solid steel plate which is U-bolted to the frame.

(TURN TO PAGE 126, PLEASE)



"I can't stand a noisy horn."

THE SERVIS RECORDER has a New Look

-and a New Feature-

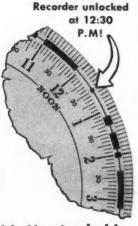
— now it records
exactly when it was unlocked!

WE have realized for some time how desirable this would be. Very frankly, we have puzzled our minds over the problem for many years... How to get a mark of this kind without running into other difficulties—without compelling the user to do complicated things, like sliding the chart under something, etc.... How to get the mark on the chart exactly where the unlocking took place—it might be the second day or the third day, for instance.

Now we have it! You put the chart in just as you always did. The Recorder takes care of the rest.

About the New Look. We think you'll like it, especially the latest crinkle finish that's so hard to mar or scratch. Write for the full story. THE SERVICE RECORDER CO., 1375 Euclid Ave., Cleveland 15, Ohio.

The New Servis Recorder



It's Unmistakable

The mark appears right on the face of the Chart, but it's also embossed on the back. It's unmistakable! Complete Quaker State Lubrication Service will help keep every type of motor vehicle operating the way the manufacturer intended it should.





Quaker State



Quaker State EXPP2 Lubricant



Quaker State Viscous Lubricant



Quaker State Super Quadrolub



Quaker State



Quaker State Wheel Bearing Lubricant



Quaker State Universal Join Lubricant

There are finest quality Quaker State Lubricants specially formulated to protect every moving part of every type of motor vehicle and keep wear at an absolute minimum.

For peak performance in automotive equipment of any sort, be sure to use *complete* Quaker State Lubrication Service.

Kester Solder



Kester Acid-Core Solder is without equal for automotive work. Made only from newly mined grade A tin and virgin lead. Fluxes chemically correct.

Preferred

Why are Kester Solders preferred by the trade? Because the name Kester stands for top quality, dependability, and uniformity. Kester Acid-Core Solder for general work, Kester Plastic Rosin-Core and "Resin-Five" Core Solders for automotive electrical work.

Saves Time

Get Kester today. You will be amazed at the speed and ease that Kester does even the most difficult soldering jobs. Use Kester once and you will use it forever.

Kester Solder Company

4201 Wrightwood Ave., Chicago 39 Newark, N. J. Brantford, Canada



The Mechanics Standard since 1899



Maintaining

Continued from Page 124

The top plates wear out in time. When needed, new plates are cut with a cutting torch to exact dimensions and are welded on the base. Constant rocking wears out the bearings and the shaft and, usually, when a new plate is needed, a new shaft will be installed at the same time. No matter what the fifth wheel needs when it is removed for rebuilding, it will be completely renewed. As with other parts, the fifth wheel usually will be returned to the parts department stock, since one was requisitioned from that department to replace the one being rebuilt.

Most of the rebuilding of the fifth wheels takes place in the welding department. To protect the eyes of the other workers in this part of the shop, all welding takes place behind a canvas wall, about five feet high and mounted on a semi-circular, movable frame made of pipe. Since it may be necessary to do a welding job almost any place in the shop, the canvas is moved wherever it is needed to encircle the welder and his job.

Our rebuilt fifth wheels are wider and heavier than the original wheels, which brings our old wheels up to the standards of the latest new ones. We also add an angle-iron brace under the wheel to give it extra support. Top plates are of \(^3\kappa_i\)-in. steel plate.

Rebuilding Parts

IN LINE with our rebuilding policy, which is designed to reclaim old parts instead of buying new ones wherever economical and practical, we continually rebuild axle housings. We build up their bearing seats with mild steel and the grease retainer seat with bronze. These are machined to proper dimensions in the lathe, and give perfect service when placed in use. These axle housings would cost us \$300 to \$400 each, if replaced with new ones. The average repair job costs us \$25, so we have a saving of between \$275 and \$375.

This same procedure is carried out in regard to broken transmission cases. New cases cost us about \$50, and the average repair cost for welding a break is about \$2.75. When the repaired case goes back in stock, it is finished up with a completely rebuilt transmission.

When engines are removed from tractors to be rebuilt, the old radiator is removed at the same time and sent to the radiator rebuilding department. Each radiator is soaked in a vat of cleaning solution from one to three hours. After soaking, the radiator is

N D le ir p it T S o n B b

(TURN TO PAGE 128, PLEASE)

GENUINE **PRODUCTS**

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e 0 NEW SERVICE DIVISION **HEADQUARTERS NOW** LOCATED AT HOLLAND, MICH.

(FORMERLY CLAWSON & BALS)



Engine Bearings

Reconditioned Connecting Rods

Rebabbitted Connecting Rods

Piston Pins

Water Pumps

King Bolts

8 **Valve Springs Rod Dippers**

Water Tubes

Babbitt Metal

Bolts

Nuts

Shims

Solders



BOHNALITE Bearings, Like Other Genuine **BOHNALITE** Products, Are Superior for Smallest Automotive to Largest Diesel Engines!

No wonder BOHNALITE bearings are preferred by Jobbers and Dealers everywhere who know these facts! BOHN, one of the world's largest producers of bearings, sponsored the development of the fully interchangeable type of bearing 25 years ago. BOHN was first to produce the copper-lead lined aircraft bearing, and later pioneered its practical application to automotive engines.

Today's BOHNALITE MAIN BEARINGS, CONNECTING ROD AND CAM-SHAFT BEARINGS possess an unexcelled quality, (backed by a really complete bearing service) that could only be achieved by BOHN'S many years of bearing development and production know-how! BOHNALITE bearings have superior alloys, processing, machining, back contact, and precision fit.

BOHN ALUMINUM & BRASS CORPORATION

Executive Offices • Detroit 26, Michigan Service Division, Holland, Michigan

Maintaining

Continued from Page 126

tested. If any of the tubes are stopped, the radiator will be "rodded." Anything necessary for complete rebuilding of the radiator also is done. If a section is damaged, it is common practice with us to install a new section cut from an old radiator.

Before it is sent to stock, each radiator is thoroughly tested in the radiator department, to be sure that it has had all corrosion removed from the inside and that it does not leak. When a new engine is installed in a tractor we always install a new radiator—or a rebuilt one out of stock.

Since the radiator man must be an expert with the soldering iron, the radiator department also becomes the "soldering department." There we send all soldering jobs, such as flexible oil lines, oil skimmer floats, solid copper gas lines, air lines and brake lines. In summer, this department overhauls cab heaters.

Another important rebuilding department is the brake department. Here

we have a specially built bench with a duplicate of a tractor and trailer braking system on which we test our rebuilt brake jobs.

Compressors, when removed from tractors at 60,000 miles, are rebuilt. We have learned that if this job is done at this mileage, brake trouble caused by failure of worn equipment becomes almost non-existent.

Compressors are completely dismantled and reassembled with new or rebuilt parts. Valves and all other brake parts are tested under identical pressures and conditions required on a tractor and/or trailer. When they pass this test, they are delivered to the parts department.

Tractors and trailers are painted regularly in the paint shop after overhauls. The general schedule is for trailers to be repainted completely after overhauling each two years. The date of the last paint job is lettered on the trailer in small numerals. Each tractor gets a complete overhaul once each year, including body rebuilding and a paint job, if it needs it.

Rebuilt parts and supplies are shipped from our main parts department to our subordinate branch shops throughout the system. They, in turn, ship us worn units removed from their tractors, which go to the regular rebuilding departments. Thus, at our main shop, we have a constant stream of parts coming in, both from our own shops and from regular new supply sources.

One of the particular advantages in a departmentized operation is that each workman learns to do his department's work skillfully. Consequently, he usually remains in our employ longer and gives more satisfactory service. Furthermore, the allocation of responsibility for failure of parts is easy. If we have road troubles with radiators, it naturally is the responsibility of the radiator department. We analyze all troubles and try to discover better ways of doing the job or effective means of correcting weaknesses. It is all part of the general theme to make parts last longer and do a better job.

END
(Please resume your reading on P. 54)
Bottom Hopper



Gramm dump trailer loads through manhole openings, which are weather proof when closed, and discharges its load by gravity at controlled speed through the hoppers in the bottom



Ever since the first Wisconsin Air-Cooled Engine was built over 20 years ago, the crankshaft of every one of these fine engines has been supported by Tapered Roller Bearings at BOTH ENDS. Here's why:

- 1. Tapered Roller Bearings take up all End Thrusts and Radial Loads (impossible with other types of bearings). You can mount your drive directly on the extended crankshaft of any Wisconsin Engine without the need for an extra thrust bearing or outboard bearing.
- 2. Tapered Roller Bearings resist wear to a greater extent than other types of bearings not only because of the file-hard surfaces of Timken Tapered Bearings but also because these bearings are inherently SELF-CLEANING. Oil enters at the smaller end of tapered roller bearings and centrifugal force carries it out through the large end, thus preventing accumulations of dirt and sludge that is often present in the oil. (Tapered bearings cannot develop shaft-cutting abrasive surfaces).
- 3. Tapered Roller Bearings permit flexing of the crankshaft to a much greater degree than the longer, rigid plain bearings which cannot stand up under flexing conditions, resulting in wearing "bell-mouthed" or failing completely. We have yet to hear of a single case of Wisconsin Engine bearing failure.

The use of Tapered Roller Bearings in ALL Wisconsin Engines from the smallest to the largest . . . 3 to 30 hp., single cylinder, 2-cylinder and 4-cylinder . . . is typical of the engineering diligence devoted to providing the user with "Most H.P. Hours of on-the-job service".



Single Cylinder 3 to 9 hp.



Two Cylinder 7 to 13 hp.



Four Cylinder 15 to 30 hp.



WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 14, WISCONSIN

For Looks and Durability ---DITZLER FINISHES ARE BEST!



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It is not surprising that Ditzler Finishes stay so goodlooking so long! They're made to give long-lasting, dependable service. • We test them in our laboratories and at every step of the manufacturing process to make sure they provide proper protection and hold their color. We submit them to long field tests to learn what effect sunlight, humidity, salt spray and extremes of temperature have on them.

Our findings are then analyzed, double-checked and measured against the performance of competitive makes by the chemists and technicians of manufacturers who use products of this kind. How highly these experts rate Ditzler quality is best shown by the continuous preference for Ditzler Finishes through nearly fifty years by most of the leading makers of passenger cars, trucks and buses. • You can have no stronger evidence of the superiority of Ditzler Finishes for all your refinishing needs.

Use DITZLER QUICKSET ENAMELS to give your customers the kind of finishes new cars have!

The same basic formula used in making original finishes for the nation's largest passenger car and commercial body manufacturers is available in air-dry Ditzco Enamels for the refinishing trade. Here is the material to use for customer jobs or used cars. When reduced with Ditzler's Thermoset, DTE-760, Ditzco Enamels may be baked with little or no danger of wrinkling. Available in nearly 1,500 colors from the Ditzler Jobbers in 800 principal cities. These are products you can get when you want them and you will like when you use them.

DITZLER COLOR DIVISION, Pittsburgh Plate Glass Company, Detroit 4, Mich.





Washington Runaround

Continued from Page 35

has been satisfactory. At present, there are 61 routes in operation, with 10 more authorized. Of these, 55 are government owned and operated and 16 are contract routes.

For the coming fiscal year, an additional \$1.9 million had been requested, \$1 million for contracts and \$900,000 for vehicles. This would have provided 45 new vehicles and 35 new government operated routes and 18 new routes in the contract service.

While satisfied with this operation, the Post Office Department does not want to own and operate a large number of vehicles. It would like to switch to contract operations and dispose of its 93 highway post offices as soon as possible, provided the price is right.

Government costs are now down to 23.9 cents a mile, from 24.5 cents last year, largely because of newer vehicles now in use. For this reason, government costs are slightly less than the average contract

rate of 25.9 cents a mile. As government vehicles become older, it is estimated that costs would rise to 28 or 29 cents a mile.

Uniform MV Law Resolution Introduced

Uniform laws pertaining to operation, ownership and control of motor vehicles is the objective of a resolution introduced by Rep. Taylor, R., N. Y. Designed to end the confusion of varying state laws, the measure calls for the establishment of a Federal Motor Vehicle Commission to report to the President on the differences in such laws; the effect of such differences; and the best method by which such laws can be made uniform, if this is found to be desirable. In a Congressional election year, however, the nation's lawmakers aren't likely to approve any measure that might appear to infringe on the rights of the states.

Over 41 Billion Needed to Repair Highways

The total cost of correcting the present deficiencies on the highways, roads and streets of the nation is estimated at \$41,-144,630,000, according to a recent report of the Congressional Joint Economic Committee. Of this amount, \$7.7 billion is estimated as the amount needed for city and village streets, and \$10.4 billion for the correction of deficiencies on the local rural roads. The remaining \$23,044,630,320 is the amount needed for the State highway systems and their urban extensions.

This report is significant since, for the first time there has been made available an analysis of the highway deficiencies for the entire 3.327,000 miles of highways, roads, and streets in the nation. This was accomplished by obtaining data direct from the governors and highway departments of each of the States, and then correlating it with the data available in the Bureau of Public Roads.

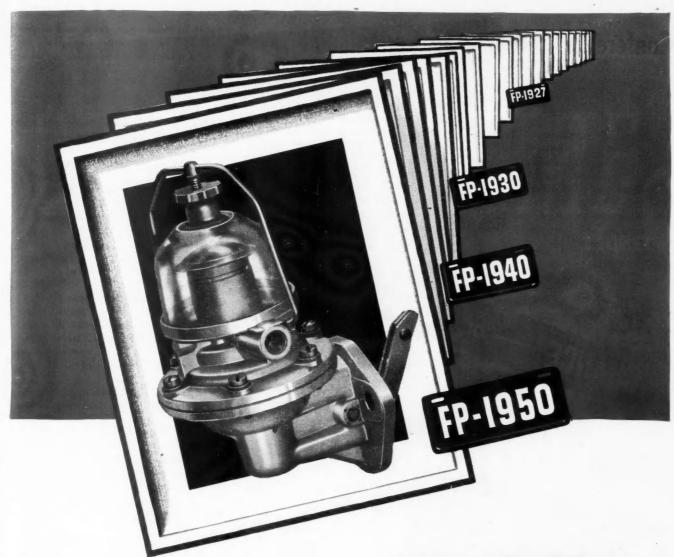
In addition to present needs, the report reveals that information from the States also indicates that an additional 35 per cent over and above the present needs would be required to correct highway deficiencies over the next 10 years.

New Child Labor Law

New child labor regulations should be studied carefully. For the first time, these regulations prohibit the employment of minors under 16 in occupations in all transportation industries as well as warehousing and storage. However, office or sales work for 14 and 15-year-olds is permissible in these fields if it does not involve any duties on motor vehicles, trains, aircraft, vessels or other media of transportation. In the permitted occupations, children 14 and 15 years of age may be employed outside school hours only. They may work no more than 3 hours a day. 18 hours a week when school is in session, and 8 hours a day, 40 hours a week when school is not in session. All work must be performed between 7 a.m and 7 p.m.

END
Please resume your reading on P. 39





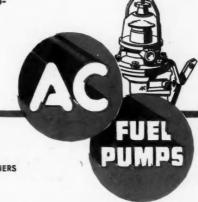
"NO WONDER

40,000,000 ARE IN DAILY USE!"

For 23 years, AC Fuel Pumps have made a notable contribution to the reliability of America's fleets of trucks and buses. Over 40,000,000 are in daily use, in almost all the gasoline-powered vehicles on the highways.

That record is built on quality. With reasonable care, AC Fuel Pumps will keep you out of trouble. Regular cleaning—regular inspection—replacement at regular intervals—that's the procedure recommended by leading fleet owners all over the country.

They specify AC, of course—Heart of the Fuel System—because reliability is most important





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AC SPARK PLUGS



OIL FILTER





AC AIR CLEANERS

preferred on millions of vehicles

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION

Conference Corner—Oil Reclaiming

Continued from Page 10

or SECURIT

the products' continuing to be satisfactory.

Salvage of promiscuous lots by such equipment I choose to call "reclaiming" to sharply distinguish it from the controlled re-refining of segregated types of used oils. The difference should be readily evident. And to repeat, the large additional number of variables to be contended with in such reclaiming make imperative that the equipment be controlled by someone with definite knowledge of what he is doing.

In any discussion where a comparison is made between virgin lubricating oil and the salvaged portion of lubricating oil extracted from a batch of used oil, it must be emphasized that there are addition agents to be taken into consideration, which—in the ma-

jority of cases—have been used to provide specific properties to fortify the virgin lubricating oil against special or severe conditions of use. These addition agents are: oxidation stabilizers, detergent agents, oiliness agents, antirust compounds, etc., which are added to the virgin lubricating oils—as I said before—to fortify it against special or severe conditions of use.

Now it is also important to say that these addition agents are not simply added to the virgin lubricating oil on a rule of thumb basis. Their selection is based upon careful laboratory evaluation, and there is also a delicate balance on the amounts to be used, which varies with each additive and each type of lubricating oil. Because of the need for these additive agents, it would be impossible to say that a re-refined oil was as good as a properly treated virgin oil; because-to be so-the reclaimed oil must not only be a stable hydrocarbon material, but it must also have the same amount and degree of fortification.

In view of the above, it is interesting to listen to the theories claiming that salvage of used lubricating oil represents appreciable consumer savings. Technically, oil can be reclaimed. But the quality of the product and its value to the user appear to be quite another matter.

I cannot see any economy in saving a relatively small amount in the cost of lubricating oil, if there is any risk at all of shutdowns or increase in maintenance expense from possible contaminants that might not be removed from the reclaimed oil. I cannot see that saving the few cents per gallon, which may be realized by following this practice, can be justified when the product is used in units costing up to many thousands of dollars. At the end of the year, these few cents in saving per gallon amount to very little. Why then, in the light of present knowledge, jeopardize the operation of expensive machines or incur heavy maintenance bills. in a gamble for such small stakes?



Please resume your reading on P. 14





J'I' DOWN TIME

FLEET #274

YEAR PASSES, STILL NO ENGINE OVERHAULS FOR DELIVERY FLEET!



"For the last year, we have used Koppers Piston Rings and the results are exceptional. They have shown the best results we have ever had with any ring installation. The increase in engine life is such that we have not yet pulled down an engine in which Koppers Piston Rings have been installed. We see no indication that this will be necessary in the near future.

We formerly were worried with top ring sticking, but with Koppers Piston Rings this has been eliminated. Oil consumption is very good and fuel mileage has improved appreciably All engines show more power, due to better blow-by control and reduction of friction caused by the perfectly mated surfaces on the rings and cylinder walls."

FOOD DISTRIBUTING COMPANY, operating 220 trucks and cars in door-to-door delivery

KOPPERS K-SPUN

STOPS PISTON RING BREAKAGE

because:

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- 1. It is twice as strong as conventional piston
- ring materials 2. It has 50% more spring
- 3. It has four times greater resistance to com-4. It has much greater resistance to wear

SEE YOUR KOPPERS AMERICAN HAMMERED JOBBER for these amazing Piston Rings—equally effective for retin or rebore jobs. KOPPERS COMPANY, IN Piston Ring Dept., Baltimore 3, Maryland.

KOPPERS POROUS CHROME*

REDUCES CYLINDER WEAR

1. It seats faster. The porosity of the chrome causes almost instan. taneous seating to make a perfect seal that eliminates blow-by 2. Chrome finish resists the penetration of abrasive material, (which controlly wears cylinders by entering the engine and imbedding it.

self in the surface of ordinary rings.) Result: Porous chrome reduces cylinder and ring wear 1/3 to 1/4 of normal

GREATLY REDUCES OIL COSTS by maintaining minimum oil consumption for longer period of time INCREASES GASOLINE MILEAGE by reducing friction, adding power, which maintains economy longer

***VAN DER HORST PROCESS**

AMERICAN HAMMERED

POROUS CHROME PISTON RINGS

Light Weight Metals Heavy on Assets

Continued from Page 58

tial carriers, hubs, brake shoes and spiders, the weight is drastically reduced and the payload increased, according to the manufacturer. Aluminum housings with greater oil capacity dissipate heat faster to prolong gear life. Four spring suspension provides better load distribution and reduces weight concentration on the frame which increases frame life.

The worm-gear drop-in unit with

aluminum differential carrier features a trough encased worm wheel for positive lubrication. The aluminum brake shoes mean less weight and cooler operation, and heat treated, hardened and ground anchor pins and cam rollers mean longer life.

Freightliner features aluminum-alloy axle housing assembly, brake spiders, magnesium brake chamber brackets, permanently sealed needle bearing camshafts, and heat treated alloy steel axle tube. The brakes are 16½ by 7 in. with aluminum shoes and spiders. Hubs are ten stud aluminum-alloy.

Recent Developments in Light Weight Materials

by Don G. LaRue Permanente Products Co.

UNDER PRESSURE for greater revenue to offset rising expenses, truck operators concerned with handling free-flowing or semi-free-flowing solids are turning to further developments in bulk-hauling methods to increase payload and cut handling costs.

The success of such proved units as bottom-dump cement haulers has led to their widespread use nationally and is spurring the extension of bulk-hauling systems to additional fields such as fertilizer, grain, feed, diatamaceous earth, dolomite, cannery waste products, garbage and ore concentrates. The reason is the bulk hauler is specialized equipment engineered to the most efficient, economical operation.

An example of this trend is the experience of California operators, who have used bulk hauling improvements to revamp delivery and handling practices, and thereby obtained marked

direct savings.

In one field—grain and feed—reduction in delivery and handling costs has brought better profit margins at the same time that price has been cut. Firms using this method have found that it gives them competitive advantages with customers beyond the lower cost, because the change from sack to bulk delivery by a tank-type with self-contained conveyor unloader eliminates sack leakages, prevents sack-borne contamination and saves the farmer on his own handling costs.

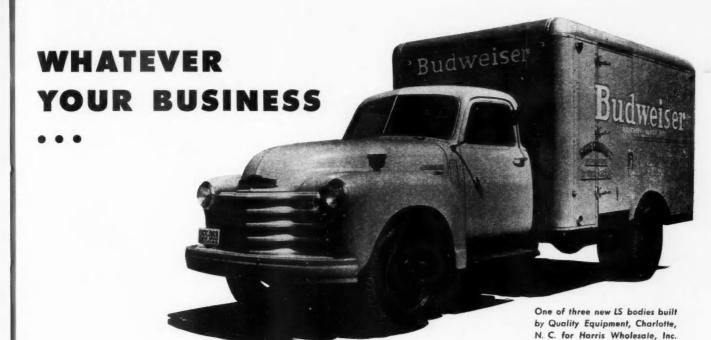
These operators are gaining extra payloads through the use of aluminum in bodies and frames. Like the now wellaccepted aluminum vans, this type of bulk carrier is gaining wide use.

Bulk delivery of grain and mixed feed was pioneered by the Triangle Grain Company of Bellflower, Cal., large feed dealers serving the rich Southern California area. Today their fleet of trucks includes nine bulk haulers—16-ft and 20-ft truck-mounted units and 35-ft frameless semi-trailers—they are waiting for the delivery of additional carriers.

Most recent development is a 35-ft semi-trailer of frameless aluminum construction that delivers a pay load of 20 tons over a 150-mile route.

Hal Stewart, El Monte, Cal., is successfully operating another type of bulk
(TURN TO PAGE 136, PLEASE)





IT PAYS TO USE A LINDSAY BODY Built for the job



Rosen's Bake Shops, Cleveland, O., service retail stores with this LS body built to their specific needs by The Carnegie Body Company.



This attractive body is the latest LS unit built for Emge's of Fort Branch, Indiana, by Hercules Manufacturing Co., Evansville, Indiana.

Whether you operate one truck or a fleet—you, too, will find that it pays to use a Lindsay Structure body built for the job.

With Lindsay Structure you not only get a body built to your specific needs, but you also get the "bonus" advantages of this patented method of construction—light weight with great strength...long life...ease-of-repair.

There is a body manufacturer servicing your locality who specializes in the use of Lindsay Structure. Ask him to show you why one of these handsome all-metal bodies built for your job is an investment that pays dividends year after year in efficient, low-cost operation.

If you do not know your nearby Authorized LS Body Manufacturer, write us for his name and address.

*A truck body built of Lindsay Structure

LINDSAY

Lindsay Structure, Inc.
5000 West Demoster St., Skokie, Illinois

STRUCTURE

U. S. Patents 2017629, 2263510, 2263511
U. S. and Foreign Patents and Patents Pending



there's only one right way-

Hendrickson makes a tandem axle unit in an exact size to do your job best. The capacity range (26,000 to 60,000 lbs.) is made possible by size change not design change.

HENDRICKSON'S ONE BASIC DESIGN IS
RIGHT FOR EVERY TANDEM APPLICATION



HENDRICKSON MOTOR TRUCK COMPANY

8001 West 47th Street . Lyons (Chicago Suburt) Illinois

Light Weight Metals

Continued from Page 134

delivery unit, developed by the Goldsberry Machinery Co. of Ontario, Cal., and being produced for them by Food Machinery and Chemical Corp. Stewart reports his customers, many of them poultrymen, are increasingly asking for feed in bulk, and from that he derives more profit at lower prices.

Bulk hauling from cement plants to distributors' silos, ready-mix dealers and batch plants has steadily increased for the same reasons, efficiency and economy. Whether trucks and trailers are operated by cement companies or contract haulers, competitive pressure is making the operators look further to squeeze out more revenue per load as well as cost reductions.

Cement-hauling is a close-margin business, which makes every pound of pay load vital to an operator. Thus, Alan G. Post, head of the Post Transportation Co. of Los Angeles, settled on aluminum 35-ft semi-trailers when expanding his operations to contract cement hauling, because they gave him a bonus load of a ton or more over comparable steel units.

The Riverside Cement Co. recently acquired its first bottom-dump semi-trailer, of identical design to those used by Post. Previously, they had used a truck and trailer combination of end-dump units.

Their aluminum unit enables them to carry eight barrels of cement (3008 lb) more than in the other combination, according to Wade Hampton, transportation manager, although the gross vehicle weight of the steel units is about 75,000 lb in comparison to approximately 72,000 for the new semi. Thus, the overall result is greater pay load, reduction in gross weight and saving of four wheels and tires.

Essentially the 20 and 35-ft bottom dump trailers are of frameless construction as the tank sides also act as two plate girders to replace the conventional heavy frame sections. Top and bottom cords of the girder are welded high-tensile steel and are attached to the aluminum web by rivets. Top, hoppers, loading hatches, breathers and discharge valves are also aluminum. At points of high-stress concentration, such as the fifth wheel and rear subframe, high-tensile steel has been employed. It is expected that further experience will permit a conservative replacement of additional steel parts by aluminum on future equipment.

Although design has been generally conservative, savings of between 2000 to 4000 lb have been made on the 35-ft

(TURN TO PAGE 140, PLEASE)

MIXED-CONCRETE CO. SAYS:

"By Actual Record-53% Longer Life ...Than Other Belts"

Look for This T*

Look for the letter "T" on the belt itself—as well as on the label—of every belt you buy for truck service. "T" means that the belt has been specially engineered for TRUCKS and BUSES. You can be sure of getting the belt designed for this more demanding service only by seeing to it that you are delivered belts which bear this letter "T".

*REG. U.S. PAT OFF.

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In addition to having a tough, multiple-ply cover of more than double durability, Gates TRUCK Belts are built with RAYON Cords. You know how greatly RAYON Cords increase the life of truck TIRES. Why not get the advantage of 50% to 80% longer wear in your truck BELTS by insisting on the Belt that is specially engineered for TRUCKS and BUSES—the GATES TRUCK BELT.

.. and NO Road Delays!

A clear saving of 53% in belt costs is certainly worth attention—and that's the saving made by using Gates Truck Belts, reported from the actual records of the Ross Island Sand & Gravel Co. (See their letter on opposite page.)

Yet this very substantial saving is literally dwarfed by comparison with the savings you gain by avoiding costly road delays due to Belt failure when your units are equipped with Gates TRUCK and BUS Belts.

Every user of Gates TRUCK and BUS Belts calls special attention to the *great reduction* in *road delays* on units that are equipped with these belts—and you will notice this, particularly, in the Ross Island Sand & Gravel Co. letter.

Biggest Saving Comes From Reducing Road Delays

There is little wonder that users of Gates TRUCK and BUS Belts emphasize this saving.

Delays on the road naturally cause disappointment to your customers who are often waiting anxiously for delivery of important shipments. Even worse than that, road delays cut down the precious net operating time of your units—and net operating time is, after all, the one thing that pays you a profit.

If you will consult with any of the operators whose names appear on these pages, we know you will find their savings from using Gates TRUCK and BUS Belts are so substantial that you simply can not afford to be without these belts yourself!

Gates Belt Jobbers in Every City
Can Supply You Promptly



THE GATES RUBBER COMPANY

Denver, U.S.A.

World's Largest Makers of V-Belts

Light Weight Metals

Continued from Page 136

units, and between 3000 to 5000 lb on trains of two 20-ft trailers. At the same time the use of aluminum has not resulted in excessive equipment cost. It is generally conceded weight reduction in lightweight van trailers increases the operator's equipment cost by 50 to 75 cents per pound of weight saved. In bulk hauling equipment almost identical weight saving is achieved at only 25 to 30 cents per pound, resulting in

increased revenue and shorter amortization periods for lightweight equipment.

Semis Go to High Strength Steel

by E. K. Waldschmidt Jones & Laughlin Steel Corp.

THE BIG TREND in construction of gas and oil motor transport vehicles is toward large semi-trailers. For a long time tank semi-trailers carrying bulk shipments have been built for the capacity permitted by gross weight

limits in the various states and localities where they are operated. Today semi-trailers are rapidly beginning to replace smaller tank trucks on retail and domestic deliveries.

One semi-trailer with 6000-gal capacity can replace four of the single unit 1500 gal tank trucks so familiarly seen at the neighborhood gas station. The story behind this trend is more than one of replacing several small units with a single large one however. It is a story of increased payloads rolling longer in vehicles requiring less operating cost, less downtime, and fewer replacements. In this story the development of high strength steels by the steel industry plays an interesting role.

Gas and oil motor transport vehicles fall roughly into two classes: (1) tank trucks with a capacity of 750 to 1500 gal; (2) semi-trailers with a capacity of 4000 to 6000 gal. The small tank trucks are most commonly made of mild steel under Specifications M.C. 300. Their capacity is well below gross weight regulations, and because the tank on these trucks is smaller, the weight saving which would result from use of high strength steel is not enough to reduce the capacity of the truck chassis. The saving in payload is therefore less important percentage-wise than it is on semi-trailers.

The use of welded aluminum alloy under M.C. 301 and 302 is limited to exceptional jobs. With high tensile steel, approximately 25 per cent of the weight of a tank is eliminated at a cost slightly more than 25 per cent greater than mild steel. With aluminum alloy, approximately 40 per cent of the weight of a tank can be eliminated but the cost is approximately 100 per cent greater than mild steel.

Semi-trailers are usually made of high strength steel under specifications M.C. 303. High strength steel is used to increase payload within the gross weight limit. High strength steel has nearly twice the minimum yield strength of mild steel. It can, therefore, be used in lighter sections than mild steel of equivalent strength. To protect this reduction in section, high strength steel has an advantage over mild steel of 15 per cent in fatigue resistance, and four to six times greater resistance to atmospheric corrosion. Developed by the steel industry primarily for use in the transportation industry, it has experienced its major widespread application within the last decade.

An example of how this steel is being used in tank semi-trailers is reported from Butler Mfg. Co., Kansas City, Mo. Their 6000 gal three compartment, tandem axle tank is normally made of 12 gage high tensile steel.

(TURN TO PAGE 142, PLEASE)



Now you can look in on the famous SPRINGFIELD SUPERPOINT Tungsten Contacts and SUPERSEAL Condensers. They're packed in assortments containing only the most popular standard replacement parts. Instant identification is made possible by numbers clearly stamped on VUE-KIT case over each type contact or condenser. Each condenser or contact in its own bin, each ready for immediate use.

You'll find VUE-KIT one of the best mediums for creating profit in the replacement market. Write today for FULL INFORMATION.

You Can Always Count On The Dependable Performance of SPRINGFIELD Superpoint Tungsten Contacts and Superseal Condensers.



SPRINGFIELD ELECTRICAL SPECIALTIES, INC.
120 WOOSTER ST., N. Y. 12, N. Y. • EXPORT DEPT.: 120 W. 42nd ST., N. Y. 18, N. Y.





There's a Fitzgerald Gasket For Every Engine Grease Retainers — Cork Gaskets — FITZ-Rite Treated Fiber Gaskets for oil, gasoline and water connections COMPLETE SETS FOR MOTOR REBUILDERS

Fitzgerald Metallic Aluminum-Fused-Oxide Steel Asbestos

resiliency and resistance to rust and corrosion that modern high compression engines demand. They must be good for we have tripled our production since they were introduced.

A gasket is one of the most vital parts of an engine, more essential than even gasoline. It must stay put after installation. Nearly half a century has given us the know how to make them so they will. It pays to use and sell them. Replacements distributed only through jobbers.

*Service Mark Registration Pending

THE FITZGERALD MANUFACTURING CO. Torrington, Connecticut



For greater safety under foot, in your plant and on your products

Inland 4-Way Safety Plate



Easy Assembly



More Traction



INLAND STEEL COMPANY, Dept. CCJ30 38 Se. Dearborn St., Chicago 3, III. Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis and St. Paul.



Safe Footing



Adds Strength

New Bulletin with New Ideas — Just Out! Bulletin Fl. Complete engineering and application data.

Send for it!

STOCKED BY LEADING STEEL WAREHOUSES

Light Weight Metals

Continued from Page 140

The total weight of this tank is approximately 11,365 lb, of which 5500 lb is tandem axle and miscellaneous accessories. The tank itself is made of approximately 5865 lb of high strength steel—in this case, Otiscoloy, made by Jones & Laughlin Steel Corp. Made of mild steel of equivalent strength, this tank would be of 10-gage instead of 12-gage steel and would weigh 7540 lb. The use of high strength steel has eliminated 1675 lb of deadweight.

The weight eliminated is used to carry an increased payload of gasoline. Translated into gallons of gasoline, the 1675 lb of deadweight saved is roughly equal to slightly more than 200 gal. If a semi-trailer makes three complete shipments a day, the increase in payload is roughly equal to 600 gal daily. Multiply 600 gal by the thousands of these trucks hauling gas and oil daily throughout this highly mechanized country, and you begin to have a conception of the importance of high strength steel in these vehicles, to the nation and to the oil companies.

In Butler's 4000 gal, three-compartment, single-axle transport tank, 12 gage high strength steel is also used. The tank weighs approximately 7820 lb, of which 4500 lb is high strength steel. Made of 10 gage mild steel of equivalent strength, this tank would weigh nearly an additional 1300 lb—would carry 145 gal less, 435 gal less in three-trip day.

Semi-trailers used for domestic deliveries during the day are being used for bulk shipments at night. Because the semi-trailer consists of two units—the tractor and the tank—other economies in maintenance and repairs result. Shipping concerns keep several spare tractors on hand. Although the tractor may be deadlined for repair, another tractor keeps the tank rolling.

Tractors last approximately 600,000 miles or six years in continuous service. Tanks last 1,000,000 miles—as long as ten years. In replacement cost, this means that only one-half of the semitrailer has to be replaced at a time. The smaller tank trucks are usually replaced as a unit.

(Please resume your reading on P. 59)

Ford Improves Block Cleaning

Ford Motor Co. has developed an improved block cleaning method employing a shot blast cleaning machine which is said to make extinct this troublesome core sand remaining in the internal cylinder block water passages. Ford plans to install these compressed air blast cabinets in all foundries soon.



80 FRUEHAUF BRANCHES coast-to-coast after you Trailer maintenance and repair that is fast and dependable! Look for the Fruehauf Service sign—it's the sign of quality.

Let Big Reasons Why!



FULL FACILITIES — Superior facilities, factory-trained specialists and specialized equipment, available at all Fruehauf Branches, assure haulers of dependable, high-quality workmanship.



BODY REPAIR—Fruehauf repairs everything—from a dented panel to a complete wreck. Damaged Trailer or Truck Bodies — wood, stainless steel, any metal—are handled with the same dependable, time-saving efficiency.



PAINTING — Factory-trained painters, using special paint spray booths, give Trailers, Truck Bodies and buses a smooth, sparkling paint job . . . put on right, to stay on under the most extreme hauling conditions.



GENUINE PARTS—A complete line of genuine parts and accessories is stocked by every Fruehauf Branch. All parts are factory tested and approved to assure perfect fit, long life.



BRAKE REPAIR—"Brake Doctors," special machines to give you "factory rebuilt" brakes, are standard equipment in all Branches. This "factory rebuilding" assures smooth stops with the heaviest loads.



MACHINE SHOP FACILITIES—Fruehauf Branches maintain machine shops for fabrication of special parts to "factory specifications" — important where repair work requires individualized parts.

FRUEHAUF TRAILER COMPANY, DETROIT 32, LOS ANGELES 58, IN CANADA: WESTON, ONTARIO

IT PAYS OFF to have them Serviced by FRUEHAUF

CCJ News Reports

Continued from Page 27

Roadeo will, however, be kept secret until two weeks prior to actual date of the contest.

Driver rules under Article I have been tightened to the extent that a driver must not only have been employed by the company he represents during the preceding 12 months but also must have performed the regular duties of a driver during the preceding 11 months. In no event may a driver compete in more than one state

1949 Domestic Truck Factory Sales by Gross Vehicle Weights*

	5000 lb.	10,000	14,000	16,000	18,001-	26,000	26,000	Total
January	31,918	25,697	8,171	17,451	4.047	2,708	1,290	91,282
February	32,799	25.543	8.155	16.057	2.855	1.839	1,292	88,540
March	39.769	28.082	8.790	17.838	2.364	1.654	1,428	99,925
April	40.568	25.068	7.440	13,909	1.926	1.590	1.307	91,808
May	33.805	19.931	4.779	12.159	2.294	1.327	1.223	75,518
June	43.655	23.572	5.234	12.031	2,110	1.417	1.155	89,174
July	41,166	24.358	5.992	9.857	1.729	1,411	914	85,427
August	47,312	23,101	5.916	8.874	1.941	1.654	1.191	89.989
September	46.349	19.073	4.801	7,403	2.074	1.523	1.264	82,487
October	43.645	17,464	3.808	6.784	2,115	1.423	1.345	76,584
November	37.842	13.364	3.371	6.024	2.232	1.641	1.616	66.090
	30.427	12.782	4.512	7.217	2.709	1.593	1.544	60.784
December	30,427	14,704	4,012	1,411	2,700	1,000	11044	
Twelve Months-1949	469.255	258.035	70.969	135.604	28.396	19.780	15.569	997,608
Twelve Months-1948	420,531	244,894	150,340	217,695	64,297	45,120	19.712	1,162,589

^{*} Data from Automobile Manufacturers Association.

Mack Offers Diesel Training

Mack Trucks, with an eye on future

maintenance requirements in the fleet field. is establishing a free 10-week training course on Mack diesels for men in the New York area. Similar courses are in progress in Boston and Albany, and plans are now in formation for the same type of instruction for other sections.

Classes meet on Friday nights from 8 to 10 o'clock in New York. Indicative of the interest in the field is the fact that 3000 applications were received for the NY training.

Instruction is given by qualified diesel engineers, and a certificate is awarded upon satisfactory completion of the course. Fleetmen interested should get in touch with Mack branches and dealers in their respective areas.

It's a 377 Cu. In. Dodge Engine

The new 377 cu in, engine powering Dodge Y model trucks got shoved around last issue, Page 92, when pixies shuffled specifications in the article head. Since this is the largest Dodge engine with a 4-in. bore and a 5-in. stroke, it is obvious that displacement is 377 NOT 337 cu in.

Freight Volume Down

Motor carriers turned up a 3.7 decrease in freight volume in December. Reports received by ATA from 319 carriers in 44 states showed these carriers transported an aggregate of 2,997,926 tons in December, as against 3,112,452 tons in November. Approximately 79 per cent of all tonnage transported in the month was by carriers of general freight. The volume in this category decreased 6.1 per cent below November.

Karpen & Bros. Appoints President

Robert G. Brooks, widely known in the bus and transit field was recently named president of S. Karpen & Bros., manufacturers of transportation seating. He will continue as general manager of the Transportation Seating Division in addition to his other duties as president.

Mr. Brooks, who is 42 years old, has been active in the transportation field for many years and is a member of the American Transit Association, National Association of Motor Bus Operators and several other national and regional organizations.

Plan to Attend ATA Meets

The Spring Meeting of American Trucking Associations, Inc., scheduled for May 8-12 (Chicago, Hotel Morrison), promises to be well attended. Have you made your reservations?

The ATA National Convention which (TURN TO PAGE 146, PLEASE)

Portable Carbon Dioxide

Extinguishers in 21/2, 5, 10, 15

and 201b. sizes. Wheeled units

in 50, 75, and 100 lb. sizes.

The **NEW**

BUFFALO better-built

CARBON DIOXIDE FIRE EXTINGUISHERS

SQUEEZE GRIP VALUE

Every motor vehicle, every garage, repair shop and spray booth needs this instant, effective protection.

Liberates a clean, dry, odorless, inert gas under high pressure without pumping. Snuffs out flames in seconds.

Especially effective on highly flammable liquids . . . gasoline, oils and greases, alcohol, solvents, paint, lacquer, etc.

Safe and certain fighting fires of electric origin . . . a non-conductor of electricity.

Approved by Underwriters Laboratories.

 Buy from your local Buffalo dealer. If unable to secure, please write us for name of nearest distributor.

Established 1895

Buffalo Fire Appliance

C O R P O R A T I O N DAYTON I, OHIO



When forced off the road onto rutted, soft, rocky or snow-banked shoulders, your driver will be grateful for Vickers Hydraulic Power Steering. The steering mechanism is then hydraulically locked against road condition reaction . . . the vehicle cannot swerve from road reaction. There is no "wheel fight" to wrench the steering wheel out of the driver's hands. Pull back onto the road requires only the "force of a finger" on the steering wheel.

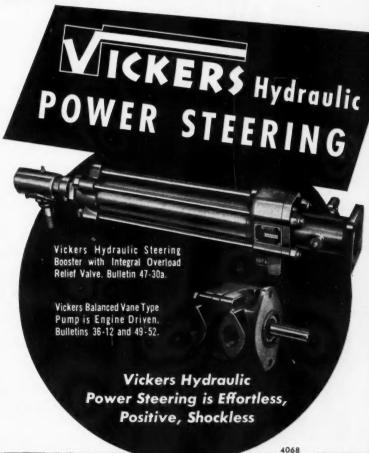
Vickers Hydraulic Power Steering is safer . . . effortless . . . provides hydraulic power at instant command of the driver to meet any and all steering requirements. This extra-quick steering greatly increases the ability to maneuver in an emergency. Another important advantage . . . the driver is less tired, more alert.

Vickers Hydraulic Power Steering can be used as original equipment, or adapted to most trucks and other vehicles now in service. Write for Bulletins 47-30 and 49-52 covering additional advantages and specifications.

VICKERS Incorporated DIVISION OF SPERRY CORPORATION

1418 OAKMAN BLVD. • DETROIT 32, MICH.

Application Engineering Offices: ATLANTA • CHICAGO • CINCINNATI • CLEVELAND DETROIT • HOUSTON • LOS ANGELES (Metropolitan) • MILWAUKEE • NEW YORK (Metropolitan) • PHILADELPHIA • PITTSBURGH • ROCHESTER • ROCKFORD ST. LOUIS • SEATTLE • TULSA • WASHINGTON • WORCESTER





CCJ News Reports

Continued from Page 144

will be held at the Hotel Waldorf Astoria in New York, Oct. 2-6, has already swamped the New York Convention and Visitors Bureau. There are no rooms available at the W-A, but 13 other hotels have reserved space for conventioneers. Make your plans accordingly. Public sale of registrations, at \$27.50 each, will open on April 10.

Industrial Notes

Formation of the Round Chain & Mfg. Co., with headquarters in Chicago, was recently announced. It will be directly affiliated with the five other Round Chain plants.

A new motor truck branch office has been completed for the International Harvester Co., near the city limits of Watertown, N. Y.

A welder parts exchange plan, whereby guaranteed factory built stators, armatures, and other parts will be available all over the country for welder repair service, has been placed into operation by The Lincoln Electric Co., Cleveland, Ohio.

The Budd Co. will begin construction immediately on its new Chase Plant in Gary, Ind. It will manufacture automobile body parts for the Nash and Studebaker factories located nearby.

The new branch truck headquarters opened by the White Motor Co., Indianapolis, more than doubles previous White sales and service facilities in the city.

Bonney Offers Prizes

Bonney Tools, Allentown, Pa., has \$5000 to give away to mechanics, mechanics with originality, that is: The company has announced a program awarding 1507 prizes to those who can show the most and do the most in completing the sentence, "I prefer Bonney Tools because . . ." Entry blanks can be secured from any Bonney jobber.

Weight Factor Numbers Urged

A recommendation of the National Classification Board that all volume minimum weights in the National Motor Freight Classification be eliminated, and "weight factor numbers" published in their stead, has been approved by the trucking industry's National Traffic Committee.

By application of the Classification's Rule 34, the new "weight factor numbers" would become operative in certain territories, based on the table of truckload minimum weights most adapted to particular areas of operation.

(TURN TO PAGE 158, PLEASE)

COMMERCIAL CAR JOURNAL, March, 1950

Budd Wheel Distributors

provide the same service described in this advertisement

AKRON—Motor Rim Manufacturers Co. ALBANY—Wheels, Incorporated ALBUQUERQUE—Wheels & Brakes, Inc. ATLANTA-Harris Automotive Service, Inc. BALTIMORE-R. W. Norris & Sons, Inc. BIRMINGHAM-Cruse-Crawford Wheel & Rim Co. BOSTON-New England Wheel & Rim Co. BUFFALO—Frey, the Wheelman, Inc. CHARLOTTE—Carolina Rim & Wheel Co.e. CHICAGO-Stone Wheel, Inc. CINCINNATI—Rim & Wheel Service, Inc. CLEVELAND—Motor Rim Manufacturers Co.
COLUMBUS—Hayes Wheel & Spring Service DALLAS-Southwest Wheel, Inc. DAYENPORT—Stone Wheel, Inc. DAYTON—Rim & Wheel Service, Inc. DENVER-Quinn & McGill Motor Supply Co. DES MOINES-Des Moines Wheel & Rim Co. DETROIT-H. & H. Wheel Service, Inc. FARGO—Wheel Service Company GRAND RAPIDS—Rim & Wheel Service Co. HARRISBURG—Standard Wheel & Rim Co. HARTFORD—Connecticut Wheel & Rim Co. HOUSTON-Southwest Wheel, Inc. INDIANAPOLIS-Indiana Wheel & Rim Co. JACKSONVILLE-Southeast Wheel & Rim Co. KANSAS CITY-Borbein, Young & Co. KNOXVILLE—Harris Automotive Service, Inc. LOS ANGELES-Wheel Industries, Inc. LOUISVILLE-Auto Wheel & Rim Service

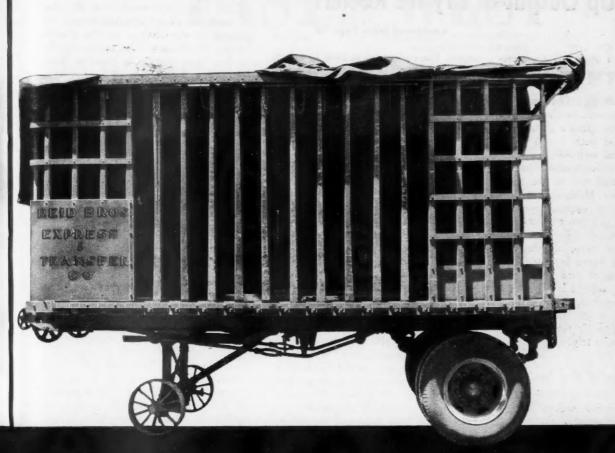
Budd

MEMPHIS-Beller Wheel, Brake & Supply Co. MILWAUKEE-Stone Manufacturing Co. MINNEAPOLIS—Wheel Service Co. MOLINE-Mutual Wheel Co. NASHVILLE—Beller Wheel, Brake & Supply Co. NEWARK—Automotive Safety Inc. NEW HAVEN—Connecticut Wheel & Rim Co. NEW ORLEANS-Southern Wheel & Rim Co. NEW YORK-Wheels, Incorporated OKLAHOMA CITY-Southwest Wheel, Inc. OMAHA—Morgan Wheel & Equipment Co., Inc. PEORIA—Peoria Wheel & Rim Co. PHILADELPHIA—Thomas Wheel & Rim Company PITTSBURGH-Wheel & Rim Sales Co. PORTLAND-Six Robblees, Inc. PROVIDENCE—New England Wheel & Rim Company RALEIGH—Carolina Rim & Wheel Co. RICHMOND—Dixie Wheel Co. ROCHESTER-Frey, the Wheelman, Inc. SALT LAKE CITY—Henderson Rim & Wheel Service SAN ANTONIO-Southwest Wheel, Inc. SAN FRANCISCO-Wheel Industries, Inc. SEATTLE-Six Robblees, Inc. SOUTH BEND-Wire & Disc Wheel Sales & Service SPOKANE—Bearing & Rim Supply Co.
SPRINGFIELD, ILL.—Illinois Wheel & Rim Co.
SPRINGFIELD, MO.—Borbein, Young & Co.
ST. LOUIS—Borbein, Young & Co. SYRACUSE-Colbourn Wheel & Rim Service, Inc. TACOMA-Six Robblees, Inc. TOLEDO-Wheel & Rim Sales Co. WICHITA-Borbein, Young & Co.

EXPORT
CLEVELAND—C. O. Brandes, Inc.

CANADA

CALGARY—Fisk Tire Service Ltd.
EDMONTON—Alberta Wheel Distributors, Ltd.
MONTREAL—General Auto Equipment Ltd.
TORONTO—Wheel & Rim Co. of Canada, Ltd.
VANCOUVER—Wheels & Equipment, Ltd.
WINNIPEG—Ft. Garry Tire Service Ltd.



Wheels Eliminate 3-Way Hazard

• Here's a wheel problem that confronts very few fleet operators these days. But the story is worth reading because it is an example of the way an unusual problem inspires the imagination of Budd wheel distributors everywhere, to find a solution for every wheel situation that comes their way.

"How can I reduce breakage claims in my heavy drayage business?" was one of the problems posed by Mr. Gus Reid, President of Reid Brothers Express of St. Louis, to the Budd wheel distributor there, Borbein, Young & Company.

"Reid Brothers Express long felt that solid rubber tires on their 18 Lapeer trailer units was the most economical mounting," writes the Borbein, Young & Company. "Still, three problems continued to plague them, until," Mr. Reid said, "they began to consider them permanent hazards of the business.

"These were: one, high breakage claims

on goods hauled; two, out-of-line trailer maintenance costs; and three, difficulty by drivers in handling the solid tired trailers.

"We studied the situation," the Budd wheel distributor continues, "and suggested a change over to dual 9.00 x 20 pneumatic tires with ten stud mounting Budd wide base wheels with 7" rims.

"Today Mr. Reid is a mighty happy man over the results. He says breakage claims have practically disappeared, trailer maintenance costs have been almost eliminated and the drivers are real pleased over the way the trailers handle."

When you have an unusual tire or wheel problem, that's your cue to call in one of the Budd wheel distributors near you. He's listed in the adjoining column... a man trained to prescribe the right tire-wheel combination for any business

that moves on rubber. The Budd Company, Detroit 14. Look for this lal (in red, blue and gold) on the rim of all genuine Budd Wheels

Bunkers Up Output of Dry Ice Reefers

Continued from Page 76

showed more even distribution of temperature as well as a drier load upon arrival.

Frozen foods can be held to satisfactory temperatures with this system, as another test shows. Here a 28-ft semitrailer was loaded with 21,000 lb of frozen strawberries and 300 lb of dry ice was placed in three bunkers, one at the right front and two at the rear. Routing was from Milwaukee to Indianapolis. With an outside temperature averaging 65 deg the shipment left Milwaukee with an average temperature of 11 deg above zero, arriving in Indianapolis 201/4 hours later with an average cargo temperature of ½ deg below zero. There was 70 lb of dry ice remaining upon arrival. Thus 230 lb of dry ice used in conjunction with bunkers supplied sufficient refrigeration for the 300 mile trip.

Advantages of Dry Ice

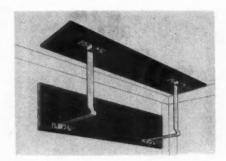
IT SHOULD be pointed out that dry ice bunkers offer a special advantage to the operator who carries refrigerated loads only on a part-time

basis. The equipment is light in weight when empty, takes up little space and is low in initial cost. One of its chief advantages is the fact that it is versatile, making possible the carrying of either dry or frozen freight with a minimum of space, weight and body changes.

Trailers are given the minimum amount of insulation because weight is the prime factor in the truck operator's mind, not only when the trailer is under refrigeration, but also when it is hauling dry freight. It is positive in performance and there is no costly maintenance. There is increased payload due to lightness in weight. The amortization of expensive refrigeration equipment is eliminated. The "evaporation" of the dry ice to a dry, inert gas, carbon dioxide, eliminates costly corrosion and actually increases the efficiency of the insulation. It protects the load like an insulating blanket keeping the temperature in the product and inhibiting the growth of harmful bacteria and molds. It also inhibits the ripening of fresh fruit and vegetables, thus eliminating the heat of respiration.

Technique of Operation

THE scheduled amount of dry ice with the paper removed should be placed in the bunkers of the trailer before it is loaded. The trailer should be loaded as quickly as possible. Dur-



Two hangers are supplied for convenient mounting. In this way bunkers can be removed easily when dry ice refrigeration is not necessary

ing loading, the doors of the trailer should be curtained so as to protect the loaded product from the warm outside air and also to keep in the cool air. After the truck is loaded and the doors closed, the blowers should be allowed to run for four hours so as to bring the air temperature inside the trailer to equilibrium with the temperature of the

(TURN TO PAGE 150, PLEASE)



tough as a rhino-new

BLUE STREAK

melamine distributor heads

No other material known and tested has the tremendous arc-resistance of Melamine. It gives real "armed-guard" protection against burning and carbonizing — even when the distributor is wet. Order a few of these super-safety dollar-saving distributor heads today. Test them in one or more of your motors. They will help cut down-time and repair expenses.

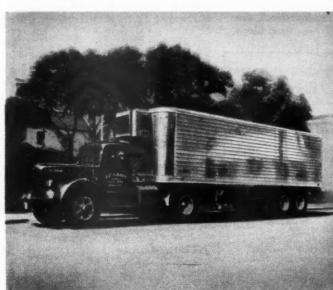
STANDARD MOTOR PRODUCTS, INC. Z



EAST or W

to SPOKANE to BILLINGS

Small Independent Operators Brown's Additional Payloads Pay



Brown Model 50 Tandem owned and operated by A. E. Abbott Company, Chicago, III.

Forrest Helton, Spokane, Wash.

Three trailers or three hundred — it's payload that counts. Brown Aluminum Trailers give all types of operators the light weight that adds up to more pay freight. Read what these two operators have to say about Browns.

Brown Trailers, Inc.

Toledo 1, Ohio Attention: A. J. Welling

Dear Mr. Welling:

nals where I unload.

I am sure you will be glad to learn about my very sat-isfactory experience with the new Brown 50 tandem lightweight trailer, which I have had in service a little over six months.

I have found the new BROWN Aluminum Trailer to be the easiest and most economical trailer for long distance hauling of any trailer I have ever owned.

The additional payload that I have been able to handle has more than off-set any additional cost to the trailer. Of all trailers handling meat, I have found the meat rail set up is more than welcomed at the various termi-

On the whole, I am more than satisfied with the BROWN Aluminum lightweight tandem trailer performance and look to the future for even greater satisfaction.

Very truly yours, A. E. ABBOTT COMPANY The Leland Trailer Co., Inc. Box "C"

Opportunity, Washington

Attention: Mr. Bruce T. Whitehouse

Gentlemen:

Gentlemen:

I want to take this opportunity to tell you how much I appreciate having a BROWN Model "50" semi-trailer, which has exceeded my expectations by quite a good margin. Of course, the difference in weight was expected, but I find that I can get even more payload on legally than I had anticipated. It also pulls behind my Kenwerth excite then are other trailer that I have given Kenworth easier than any other trailer that I have ever owned, and in long haul operations this is a great asset as one does not tire so easily.

I have a very minimum of insulation in order to get the maximum amount of loading space, and I am able to hold produce in zero weather conditions without any loss.

It may be interesting for you to know that my 35' overstandard height trailer, with a side door and a double basket tire carrier, fully insulated, on 11:00 x 20 wheels and tires weighs only 9500 lbs. You may take my word as an independent operator, I am more sold than ever before on BROWN trailers.

Yours very truly,

FORREST HELTON



the Tale



BROWN TRAILERS, INC., Toledo, Ohio . Spokane, Wash. Distributors in all principal cities

Dry Ice

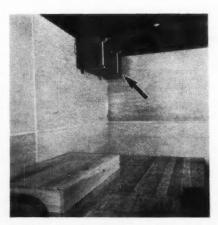
Continued from Page 148

product loaded. Should the trailer stand at a loading dock and not have the tractor attached, the hot wire in the trailer should be hooked up to a 6-volt transformer on the loading dock. In this way power for the blowers may be taken direct from the dock's 110-volt

For quick precooling necessitated by excessive temperatures from washing or because of shipper requirements, dry ice can be crushed to the size of a fist on the floor of the trailer before it is sent out for loading. The quick sublimation of the dry ice will quickly bring down the temperature of the loaded truck.

The amount of dry ice to be placed in the bunkers depends upon the season of the year, length of haul, length of trailer and type of load. The size or number of units installed depends upon the size of the truck and the length of time the truck is under refrigeration. In transport trailers, the four block size is usually used, and one four block

unit is used for every 10-ft of trailer length; in other words in a 21-ft trailer two are used; one in the front blowing toward the rear and the second in the opposite corner of the rear blowing toward the front. In a 30-ft trailer three are used, one in the front blowing toward the rear, the second in the midsection of the truck and the third in the rear, blowing toward the front.



Bunkers are installed near the ceiling of the truck, at the front and rear, the number depending upon the load and transport conditions

If the trailer is on a run where it is necessary to re-ice in transit, one may be installed in the front and the remaining two in the rear blowing toward the front. In this way it makes it easier to get at the two rear units for re-icing in transit. In 32-ft trailers which are under refrigeration for longer than 48 hours it is advisable to place two four block units in the front and two in the rear, in this way sufficient dry ice can be carried for a 60-hour run, and no re-icing in transit is necessary. It is advisable to install enough units in a truck so that sufficient dry ice can be carried to refrigerate the truck for the entire trip without the need of re-icing in transit. This is possible for a period up to 60 hours.

Please resume your reading on P. 78

Tank Research



Heil transport tank rebounding from bump plates during road tests under actual load conditions. Stresses are automatically picked up from locations by strain gauges and lead wires and recorded by electronic instruments shown mounted on top of tank and located in tractor cab



Hein-Werner Hydraulic Jacks Are Built for Heavy Duty Fleets



From ram-head to base, a Hein-Werner Hydraulic is a "truck driver's jack"-fast, safe and sure.

Hein-Werner Jacks have extra-strength, pressuretested malleable iron base, handle and top nut to reinforce at points of greatest strain. Models of 30-ton and greater capacity have solid steel base. They're precision made throughout, with exclusive Heinite Piston, proven to withstand ten times the wear of conventional cups or packings.

Every H-W Jack is factory-tested at 11/2 times rated capacity. Compare Hein-Werner with any other jack for quality and price . . . you'll be convinced it can't be beat. Made in models of 11/2, 3, 5, 8,

12, 20, 30, 50 and 100 tons capacity.

12 TON MODEL

Hein-Werner

Mechanic Training

Continued from P. 55

those parts of the vehicle where greatest need for maintenance information is indicated. In other words, films can be obtained on engine maintenance, rear end maintenance, brakes and so on.

Diesel Buses Inspire Course

() UR last mechanical training course, which ended just a few months ago, was inspired by the purchase of new GM diesel coaches. To acquire needed maintenance knowledge, we had sent four men to the GM Diesel School at Flint, Mich.

The course had been so thorough and successful that we regretted the impossibility and impracticability of sending every man in the shop to take this course. Each trained man tried to impart, to the best of his ability, the knowledge gained to the other men in the shop, but this was too slow. We wrote the manufacturer, explained our desire to conduct a similar course and received a reply offering the fullest cooperation.

We receive, free of cost, a set of six manuals for each man. In addition, we received a list of available visual aids in the form of motion picture and slide films. The slide films were tiedin with the manuals; in fact, the illustrations in the manuals were the same as on the slide film. This coordinated perfectly with the lecture and the reserence material.

Personnel Support

THE time to broach the subject of instruction to the shop personnel is when the course has been thoroughly planned and all necessary material is in readiness.

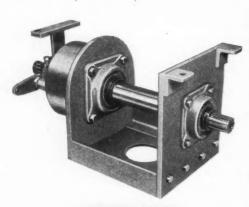
An appraisal of the material should be made from the standpoint of subject division and approximate time required to cover the course. The men will want to know the duration, the full scope of the course, and if it will be necessary for them to attend when subjects "out of their department" will be covered.

(TURN TO PAGE 154, PLEASE)

Dayton Brake Drums are Distributed through **National Wheel & Rim Association Members**

ATLANTA, Ga. Harris Automotive Service, Inc.
BALTIMORIE, Md. R. W. Norris & Sons
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MINNEAPOLIS, Minn. Pioneer Rim & Wheel Company
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CEMCO offers you PORTABLE POWER



CEMCO SPLIT-SHAFT POWER TAKE-OFF

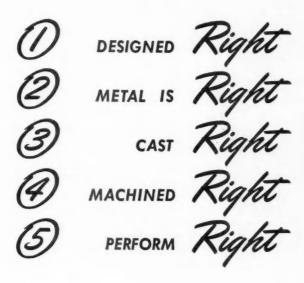
GET POWER DIRECT FROM YOUR TRUCK MOTOR

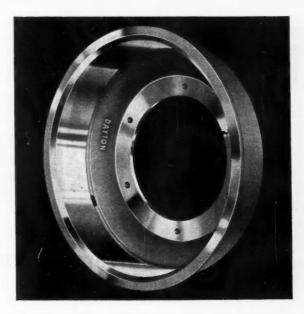
Can be installed on any standard truck chassis. By using V-belt or chain drive, full power of motor can be transmitted to any equipment behind the cab.

HAVE POWER WHEN YOU WANT IT, WHERE YOU WANT IT . .

Think of the convenience, the economy, the speed, when you can take power wherever your truck can travel! Hand lever in cab enables driver to operate PTO from cab.

Reasons why <u>Dayton Brake Drums</u> are <u>Right!</u>





Prolonged study of flexing stresses and "heat checks" by our metallurgical engineers, together with countless tests in actual service have resulted in the Dayton Brake Drums of today.

These drums long ago proved their ability to "take it" even under extremely heavy duty service. They give you long life, unexcelled performance, low operating costs and reduce breakage to an absolute minimum. They keep their roundness even under high temperatures. If you are looking for *mileage*, why not buy Daytons, the Drums that are RIGHT?

These thoroughly reliable, time proven drums are available for replacements through NATIONAL WHEEL & RIM ASSOCIATION Members.

THE DAYTON STEEL FOUNDRY COMPANY, DAYTON 1, OHIO

DAYTON Brake Drums



DAYTON SPOKE TYPE CAST STEEL WHEELS
... run cooler, give long life and lower operating costs.



DAYTON 5TH WHEELS Standard equipment on many trailers. Quick coupling. Positive operation.

DAYTON
LANDING GEARS
Made in both hydraulic
and mechanical types.



Mechanic Training

Continued from P. 152

They will want to know, too, if attendance is compulsory, and how completion of the course will affect their iob rating.

All of these points were outlined clearly the first night our men were assembled. In addition, management pointed out the benefits and advantages to be derived from such courses. While we would benefit, to some extent, the men would gain to a greater degree.

An education is something, we pointed out, that nobody could take away from them. Self-improvement naturally leads to advancement. Moreover, if personal circumstances occasioned their moving to some other city, or other part of the country, their chances of employment would be considerably enhanced if they could qualify, by training and experience, to handle diesel bus maintenance.

As would be expected, the direct appeal to each man's personal welfare won acceptance and cooperation.

Selecting Time and Place

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HAVING obtained personnel support, we next had to decide when and where we would conduct the course. Having both day and night shifts, we could not avoid conflict with production time. However, inasmuch as only a small part of our personnel worked at night, the logical decision was to hold it at night. This would mean that there would be some interference with our nightly production but, inasmuch as the overall benefits would be greater than the production loss, evening classes were finally decided upon.

Selecting an evening most convenient to all was the next problem. This was solved by making a poll of the staff. From all suggestions received, we finally selected Thursday, which was convenient for all.

As for time, we had to figure on sufficient traveling time for all men to get home, get cleaned up, eat without undue hurry and return to the shop. The hour most satisfactory to all was 8 o'clock. We decided to hold two-hour sessions—from 8 to 10 p.m.

The question of payment for evening time was raised. Again, we pointed out that, while our property naturally would receive some benefits from the training course, the individual men were in a position to gain equally as much, if not more. It was their course, not management's, and that the time spent in taking the course was a good investment toward their future advancement and financial gain. The men saw the logic of this thinking and that subject was dropped.

As for place, we had a choice of several rooms but finally decided holding it in the unit rebuilding department of the shop. The shop is the best place to hold such meetings. It gets away from the theoretical atmosphere of the classroom. If needed, actual parts and necessary tools are available for actual work, if such an occasion arises. There was ample room in our unit rebuilding shop, plus necessary lighting and heating for comfort. We obtained the necessary number of folding chairs plus a screen, projector and all needed slide film. For projecting loaned moving picture films, we borrowed a 16 mm projector from the transportation department, which uses it as part of its visual aids for driver training.

Own Instructors Are Best

WE DECIDED that we could do the job of instruction ourselves. The basis for this decision was that we know our problems better than an outside instructor. This would enable us to give more or less time to each part of the course, as we deemed best by experience. We knew our men's weak and



strong points, and we could work on these to best advantage. Also, with management actively taking part, the men would be more prone to give their best efforts to show that they could qualify for future promotions.

Results Beneficial to All

WE HAVE been asked, many times, if these courses were beneficial to us and to what extent. These questions are most difficult to answer; and its hard to back up the answers with irrefutable proof.

Generally, we can state with utmost conviction that those courses are greatly beneficial to both the mechanics and ourselves. The men benefit to the same extent that every person stands to gain from a better education than he had previously. His approach to every maintenance problem is intelligent and confident. It improves the speed and quality of his work.

Take the best mechanic on your staff and put him to work on a vehicle which he has never seen before and his approach will be slow and unsure. He is obliged to guess and experiment. Many conscientious workers fear to tackle unfamiliar jobs. Knowledge removes that fear.

Perhaps the best evidence of how the men benefited from the course is the fact that, after it ended, we have received several inquiries as to when we would resume or start new training courses. They realized that their field is ever changing; that there is no such thing as learning the trade and "that is it." Automotive maintenance moves with the same pace as automotive design and construction—one of the fastest changing fields in all industry. If they want to go along, they must continue seeking additional knowledge or be left behind.

Despite the fact that our last course lasted for 17 weeks, attendance was better than 90 per cent. There was no absenteeism, as such. When any of the men found, for personal reasons, that it would be impossible to attend a session, they would ask in advance to be excused.

Employees that attended the course were given credit on their personnel records, which will aid advancement in position when vacancies occur.

From our standpoint, we benefit by the increased accuracy, intelligent handling and improved quality of workmanship. We wish there were some way

Mr. George H. Scragg has opened his own sales promotion service agency in Cleveland. He will continue a close relationship with the White Motor Co. by handling all of their dealer aids. that we could prove these statements on

The results, however, are indicated in many ways. The most oustanding is the professional attitude that the mechanics take toward the work they are doing.

Because of the variety of work that passes through our shop daily, it is impossible to say that production has been increased by any particular number of units. But, from personal inspection, we can see that our vehicles look better and run better. Our daily sheets show us that driver complaints and de-

lays are fewer. This is a good measure of maintenance quality. If the vehicles are reasonably trouble free, the transportation service they provide will be practically trouble free—barring accidents and other troubles beyond our control.

Because of our successful experience with training courses, we will be glad to furnish interested properties with detailed information as to policies and procedures.

END

Please resume your reading on P. 56



Snyder Safety Cylinder Tank and Tool Box Units use up wasted space by providing storage for cools, chains, power jacks, danger flags, etc. The jackwell is upright to prevent possible escape of jack fluid.

SNYDER SAFETY TANKS

A reflection of confidence in safety, dependability, and proven performance.

Snyder Safety Saddle Tanks occupy wasted space between the cab and fifth wheel. The top deck plate provides a safer means of crossing the chassis and carrying material, hose lines and spare tires. Fuel capacity of 75 to 150 gallons.



Cylinder Tanks are used where space is limited. They are constructed for standard or end fill. Capacity of 28 to 72 gallons.

For Catalog and Name of Your Nearest Dealer, Write:

SNYDER TANK CORPORATION

P. O. Box 14, Buffalo 5, New York

P. O. Box 2390, Birmingham 1, Ala.







Brake Squeal Continued from P. 59

show that the original new drum and lining operated 15,000 miles and the same drum relined with new blocks operated 16,000 miles. The same drum modified, with the slot, and new lining operated 17,000 miles. (In all instances identical lining was used.) While these figures are not conclusive, they do serve demonstrate that brake lining life will not be shortened.

The slot in the drum acts as a vent for heat and permits any accumulated foreign particles to escape. The edge of the slot acts as a mild scraper, and prevents glazing of the brake lining and any subsequent heat checking of the drum. In addition, it has been observed that scoring of the drums and lining has been eliminated. No failures have been experienced.

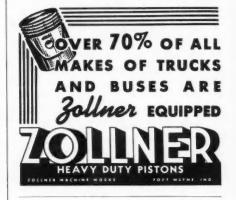
The results of the tests have been given to the representatives of a number of brake lining manufacturers. They have been requested to furnish lining which will give the longest life possible without incorporating materials which are intended to eliminate squeal and possibly shorten brake lining life. Having accomplished this definite cure for squealing brakes through drum design, it is anticipated that the manufacturers may be able to furnish a lining which will give 50 to 100 per cent longer life than was obtained heretofore.

Instead of modifying standard drums now furnished by suppliers, arrangements have been made with a manufacturer to furnish these drums without the lip or raised edge. A salvaged flywheel ring gear, or one machined off an old drum, can be then installed on the new split-type drum.

This present method of suppressing brake squeal is satisfactory until someone finds a more acceptable means to eliminate this headache for both the maintenance man and the public.

END

Please resume your reading on P. 60



RENEWS CARBURETORS (All other metal parts)





KINNEAR STEEL ROLLING DOORS

For Truck Bodies and Buildings
Kinnear Rolling
Doors save floor and wall space, open completely out of the way, and give extra protection. Built any size; motor or ranual control.



THE KINNEAR MFG. COMPANY 2100-20 Fields Ave. • Columbus 16, Ohio

STANDARD ENGINEER'S REPORT

UNITS 148 Diesel engines

LUBRICANT RPM. Delo Oil

UNITS 148 Diesel engines

Leavy-duty-service

CONDITIONS 24-hour operation

PERIOD 13/2 months

10В L. a. airport Extension

Engine-cleaning oil cuts "down time" in half!



LUBRICATED WITH RPM DELO OILS, more than 100 heavy-duty engines like these were pushed to full capacity around the clock. They finished the greatest earth-moving project in the West 150 days ahead of schedule! RPM DELO Supercharged Oil kept parts lacquer-free and reduced wear so that time out for repairs was reduced 50% under that necessary when using ordinary heavy-duty oils.

How RPM DELO Oils reduce wear, corrosion, oxidation in Tractor, Truck, and other Heavy-Duty Engines



- A. Contains special additives that provide metal-adhesion qualities . . . keep oil on parts whether hot or cold, running or idle.
- B. Anti-oxidant resists deterioration of oil and formation of lacquer . . . prevents ring-sticking. Detergent keeps parts clean . . . helps prevent scuffing of metal.
- C. Special compounds stop corrosion of any bearing metal and foaming in crankcase.



HEAVY-DUTY DIESEL AND GASOLINE EQUIPMENT, owned by 8 contractors, moved over 12,000,000 cubic yards of earth on this cut and fill job—an extension to the Los Angeles Airport—in 13½ months! General Contractors are N. M. Ball & Sons, Berkeley; Harms Bros.,

REMARKS: RPM DELO Oils are designed to meet every heavy-duty engine need: RPM DELO Heavy Duty, RPM DELO Special, RPM DELO Supercharged-1 and RPM DELO Supercharged-2 Lubricating Oil.



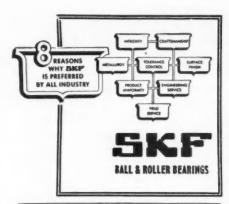
Sacramento; H. Earl Parker, Inc., Marysville; Subcontractors, Lewis & Queen, Fresno; Louis Biasotti & Son, Stockton; Baker Bros., Chico; Gunner Corp., Pasadena; and Far West Construction Co. All used Standard Oil Company of California products 100%.

FOR MORE INFORMATION about the proper grade of the new RPM DELO Oils to fit your particular requirements, or the complete line of RPM Lubricants, and the name of your nearest "RPM" Distributor, write or call any of the companies listed below.

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Distributors or factory sales and service representatives everywhere

THE DEVILBISS COMPANY

CCJ News Reports

Continued from Page 146

Truck Production Down

Truck production decreased by 18 per cent over 1948, says the Automobile Manufacturing Association, but passenger car production increased in 1949 by 31 per cent, bringing the total factory sales of the industry to 6,238,088. The respective totals: 5,108,841 cars, 1,123,736 trucks. Only 277,745 vehicles were exported in 1949.

Rubber Notes

Total new rubber consumption in the U. S. in 1949 amounted to 988,618 long tons, according to the December report of the Rubber Manufacturers Association. Manufacturers' shipments of truck and bus casings were down to 11,463,406. Shipments of truck and bus casings, however, rose in December to 959,558 units, or 7.05 per cent. Production was also up, rising 12.22 per cent in December.

Britain Shows Wares

Great Britain shows her wares in New York, April 15-23, when over a hundred passenger cars and products of nearly a score of manufacturers will be displayed at the British Automobile and Motor Cycle Show. Trucks, buses, accessories, garage equipment, trailers and diesel engines will be exhibited in grand style at the Grand Central Palace.

New Developments Promise More Power for Diesels

New power and efficiency can be attained with diesel engines by the use of supercharging, water and alcohol injection, better cooling and higher operating speeds, the SAE Metropolitan section was told at a recent meeting in New York City.

C. R. Maxwell, assistant director, Diesel Engine Research, Caterpillar Tractor Co., voiced the opinion, based on recent tests, that greater power output can be obtained without loss of traditional economy and dependability.

He reported that investigations had failed to uncover fuel at any price that will yield a significant increase in power over that obtainable with ordinary commercial diesel fuel, but an alcohol and water mixture injected into a diesel undergoing high power output tests produced more power because a portion of the alcohol burned. Reduction in the percentage of alcohol in the mixture eliminated pinging, which was experienced earlier in this phase of testing.

Supercharging, in use for some time on certain diesel engines, can be improved to effect greater power output with a reduction in size, weight and cost for a given power, he said. A cooling problem is encountered in higher supercharging, but the tests showed that greater air flow and greater cooling areas would reduce this difficulty. Internal cooling by a water

(TURN TO PAGE 160, PLEASE)



MOTOR TRUCKS

GASOLINE ELECTRIC
GENERATING SETS



TRUCK COMPANY
LANSING, MICHIGAN

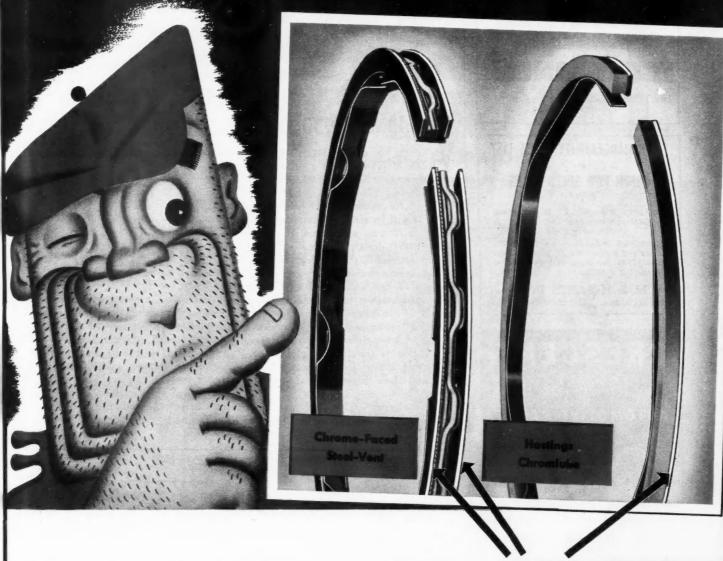


SALES REPRESENTATIVE WANTED

Leading Manufacturer of Decalcomania desires representation in several metropolitan centers. Product is nationally advertised and used by many of the country's largest fleets. Correspondence is invited from Sales Representatives calling on fleet operators. 15% commission basis. Write Box 20, Commercial Car Journal, 5601 Chestnut St., Philadelphia 39, Pa.



HASTINGS HEAVY-DUTY SETS FOR TRUCKS AND TRACTORS

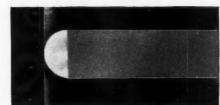


• More than four years of field testing have confirmed the Hastings principle of putting chrome where it is most needed - on the oil control rings.

Hastings heavy-duty Chrome Sets, with Chrome-Faced Steel-Vent and Chromlube oil rings, are out-performing all previously known ring combinations. They greatly increase expected piston ring life even under severe conditions.

Under any operating conditions, you'll get greater resistance to scuffing, less cylinder wall drag and longer life with Hastings Chrome Sets. Available now for nearly all trucks and tractors.

HASTINGS MANUFACTURING COMPANY . HASTINGS, MICHIGAN Hastings Ltd., Toronto



Hairline Contact

The chrome-faced edge of Hastings steel segments is not flat, but round. This rounded edge gives a fine, hairline contact with cylinder wall - helps the ring seat properly with greatly reduced cylinder wall drag.





HASTINGS STEEL-VENT PISTON RINGS

CHROME-FACED FOR HEAVY-DUTY SERVICE

BE SURE

the trademark "Timken" is on every tapered roller bearing you buy. Timken bearings are first choice with truck and trailer manufacturers. Remember—for the best in bearings—

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The Timken Roller Bearing Company
Canton 6, Ohio

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Easy-to-read cross-reference charts giving names and numbers for all parts of these axies. \$5.00 per copy. Sent on five day approval if desired.

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MOST CAR AND TRUCK MAKERS DO

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Gaskets • Radiators • Mufflers
Pipes and Oil Retainers





Reo Unveils 1950 Line

REO MOTORS, INC., announced recently its new line of 1950 truck models including Models E-19, E-22, and E-23—in the medium and heavy-duty field. It will be recalled that when the Model E-22 was announced (CCJ in July, 1949) design changes and improved accessibility were featured.

The styling characteristics and other features of the E-22 model now have been incorporated in the other basic models of the line. The line now includes 11 basic models, five tandem units, and seven different power plants. In addition to the truck models, Reo also offers a new Gold Comet school bus, and Reo Flying Cloud transit coach.

A wet-sleeve Gold Comet gasoline engine supplements the earlier 331 cu

The complete line for 1950 includes the E-21, E-22,, E-23 in medium and heavy-duty models; the Gold Comet school bus and the Flying Cloud transit coach LEET

Bore (in.)	37/2
Stroke (in.)	41/8
Displacement (cu in.)	292
Compression Ratio	6.55 to 1
Governed Gross Bhp	124 @ 3300 rpm
Governed Net Bhp	110 @ 3300 rpm
Maximum Gross Torque (lb ft.)	224 @ 1400 rpm
Maximum Net Torque (lb ft.)	218 @ 1400 rpm
Number Main Bearings	7

in. engine. The new model has a displacement of 292 cu in. and is identical in mechanical design to the larger model. It will power the E-21 Series trucks and is said to have sufficient net horsepower to move a 34,500-lb tractor-trailer combination at 55 mph. Basic mechanical specifications of the three lines of trucks mentioned here remain unchanged.

CCJ News Reports

Continued from Page 158

spray into the inlet air reduced the air temperature by 140 deg F. Further development of this heat control method promises a "remarkable decrease in operating temperatures."

Higher speeds, with concomitant increases in power, are desirable and possible when vibration and friction can be held to acceptable minimums. Mr. Maxwell concluded that the favorable cost, dependability and durability characteristics of the diesel engine must be retained while new improvements permit manufacturers to "substantially increase engine ratings safely."

Driver School Popular

The North Carolina driver school has been swamped with applications. In fact 60 hopefuls enrolled in January, with scores of others being relegated to the waiting list for the 6-week course. The states of Michigan and Missouri, have pricked up their respective ears and announced plans for similar training facilities in the near future,

END

(Please resume your reading on P. 31)



